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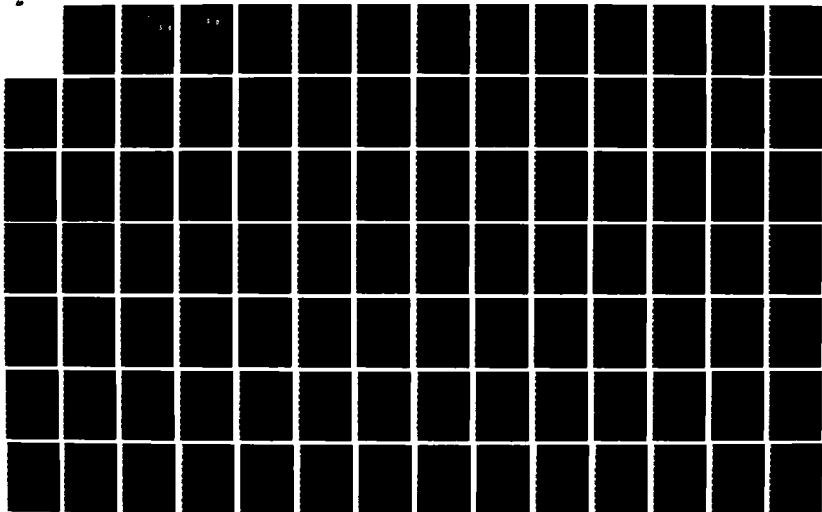
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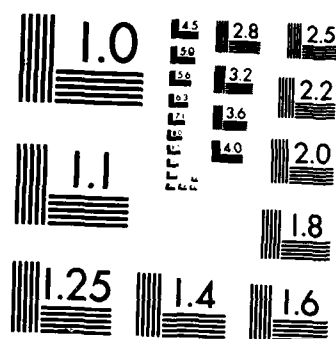
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AN INVESTIGATION OF CODE 5 AND DIRECT  
PROCUREMENT METHOD (DPM) PERSONAL  
PROPERTY SHIPMENTS TRANSITING  
MILITARY OCEAN TERMINALS

THESIS

Walter R. Furtak  
Captain, USAF

Charles M. Mielke  
Major, USAF

AFIT/GLM/LSM/85S-49

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AN INVESTIGATION OF CODE 5 AND DIRECT PROCUREMENT  
METHOD (DPM) PERSONAL PROPERTY SHIPMENTS  
TRANSITING MILITARY OCEAN TERMINALS

THESIS

Presented to the Faculty of the School of Systems and Logistics  
of the Air Force Institute of Technology  
Air University  
In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Logistics Management

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September 1985

Approved for public release; distribution unlimited

### Acknowledgements

We wish to express our sincere appreciation and gratitude to our advisor, Major Kent N. Gourdin, and to our reader, Captain Ben L. Dilla, for their valuable advice and guidance throughout this research effort. We would also like to thank the personnel who assisted us at HQ MTMC (Personal Property, International Traffic, and Systems Division), at MTMC Area Commands (Personal Property and International Traffic Divisions), and at the ocean terminals (CULF OPT, MOTBA, MOTBY, PNW OPT, and SOCAL).

A thesis is a team effort and we truly appreciate the special contributions you made. Your attention to detail, timely support, and willingness to do that "little extra" contributed directly to the successful publication of this document. Once again, we express our deepest appreciation to those who supported us in this research effort.

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Abstract

The Military Traffic Management Command (MTMC) manages the international movement of DOD personal property. The responsibility for the movement of Code 5 and Direct Procurement Method (DPM) personal property (PP) overseas shipments is divided between the commercial line haul carrier and MTMC's ocean terminals. This <sup>thesis</sup> ~~research effort~~ focussed on operating procedures, existing regulations, and contractual agreements which affected the processing time for import and export PP shipments through three major CONUS MTMC Western Area and two major CONUS Eastern Area ocean terminals. Documentation review, personal interviews, and telephone interviews were used to facilitate this research. A data base of import and export PP shipments was obtained from HQ MTMC and statistically analyzed with respect to the personal property 15 day time-in-terminal standard. This research resulted in the identification of six recommendations to improve the PP shipment program at MTMC CONUS ocean terminals. It was concluded that the 15 day time-in-terminal standard is crucial to the formulation of minimum Required Delivery Dates (RDDs), and therefore must be accurate to prevent establishing unreliable minimum destination RDDs. At least two computer reports appear necessary to monitor the terminals' personal property processing performance and insure the 15 day time-in-terminal standard is met.

AN INVESTIGATION OF CODE 5 AND  
DIRECT PROCUREMENT METHOD (DPM) PERSONAL  
PROPERTY SHIPMENTS TRANSITING MILITARY OCEAN TERMINALS

I. Introduction

General Issue

The Military Traffic Management Command (MTMC) manages the international movement and storage of Department of Defense (DOD) personal property, with fiscal year 1984 expenditures exceeding 400 million dollars. Its responsibilities include the overall review of program efficiency and effectiveness, procurement and use of transportation and storage service, evaluation of carriers' performance, and supervision and guidance to all activities involved in the movement of personal property (16:3). The three types of surface transportation service that MTMC provides for overseas household goods shipments are Code 4, Code 5, and Direct Procurement Method. These three surface modes are defined as follows:

Code 4 Door to Door Container. Provides for movement of household goods between a point in CONUS and a point outside CONUS. It includes containerization of household goods at residence or place of non-temporary storage and transportation to destination residence. Shipments originating at non-temporary storage warehouses may be moved by local van to carrier's origin facility for containerization whenever the origin transportation officer determines that the best interests of the government and property owner will be served (47:21).

Code 5 Door to Door Container Government. This code is similar to Code 4 except that the carrier

delivers the shipments to the government at the port of embarkation; the government provides port handling, stevedoring and ocean transportation, and delivers the shipment back to the carrier at the port of debarkation. This mode is used extensively when commercial ports are threatened by or are under strikes (47:21).

Direct Procurement Method (DPM) is that method in which the government manages the shipment throughout. The government procures packing, crating, local drayage, and storage services from commercial firms under a contractual arrangement; uses a government-purchased shipping container; makes separate arrangements with rail or motor carriers for land transportation; schedules the shipment through government-operated ports and terminals; and issues separate documents for each segment of the movement from origin to destination. In essence, the government acts as the freight forwarding agency (47:17).

Paragraph 30071 of DOD 4500.34R, Personal Property Traffic Management Regulation, levies a responsibility on the member to ensure that the required delivery date he specifies for his shipment accurately reflects his needs (22:27). However, there are minimum transit times that the carrier industry and the Department of Defense have mutually agreed upon. The Transit Time Guide reflects these times (18). Simply put, a transit time is constructed by summing each distinct movement of the shipment's journey from origin to destination.

Figure 1.1 graphically illustrates the time segments involved for an overseas shipment moving via a surface mode. The time segment that is under direct MTMC control is the time-in-port or time-in-terminal segment.

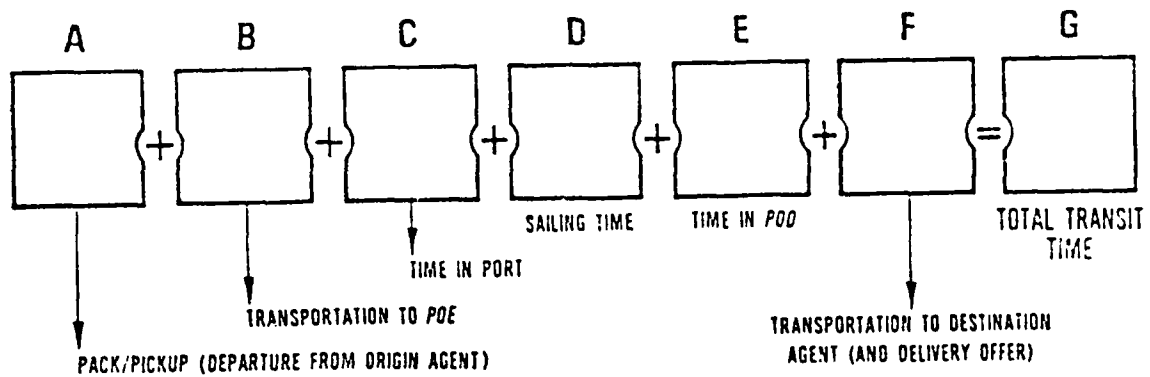


Figure 1.1 Time Segments for Processing an Overseas Personal Property Shipment from Origin to Destination (29:12)

MTMC strives to improve the quality of service received by military members for movement of their household goods to overseas locations via surface transportation. During permanent change of station (PCS) moves, the morale and welfare of service members and their dependents is directly affected by the timely receipt of their personal property. A potential problem exists in the formation of Required Delivery Dates (RDDs) for Code 5 and DPM personal property shipments. RDDs are determined by summing all of the time segment standards required to move a shipment from origin to destination. Inaccurate standards distort the true time it takes for a shipment to reach destination. Ultimately, late household good shipments can result in member hardships, degradation of job performance, and additional costs to the government. The responsibility for movement of Code 5 and DPM is divided between the commercial line haul carrier and MTMC's ocean terminals. At present, there is no standard

time criteria to indicate when the carrier's responsibility ends and MTMC's begins. Therefore, assessing blame for missed RDDs is difficult, if not impossible. Mr. Lee Strong of the Directorate of Personal Property Operations Division wrote in an information paper:

MTMC has refused to disqualify Code 5 carriers due to the difficulty of assigning blame. During the Iceland Monitoring System (IMS), MT-PPP advised carriers of segmented times to ports and held them to "mini-RDDs." The Disqualification Board refused to disqualify solely for missed "mini-RDDs" to ports (46:1).

Carrier reporting procedures and terminal reporting procedures appear to differ regarding terminal start and stop times. Without standardized reporting from the carrier and the terminal, Headquarters (HQ) MTMC is unable to dispute the carriers' claim that the terminals are exclusively at fault for late delivery of Code 5 household good shipments. HQ MTMC has agreed to sponsor an investigation into the current 15 day time-in-terminal standard being used by the military ocean terminals and their procedures to record individual transit times.

#### Problem

There is neither historical nor current evidence to verify the accuracy of the 15 day time-in-terminal standard presently used by military ocean terminals for Code 5 and DPM personal property shipments. The Personal Property Directorate of MTMC Eastern Area (MTMCEA) has established a goal of 95% effectiveness for processing personal property



shipments within 15 days or less as part of the Command Operating Plan (17:2). The effectiveness rate for all shipments moved during Fiscal Year 1984 for Eastern Area Military Ocean Terminals was 68.4% (12). MTMC Western Area (MTMCWA), Personal Property Directorate has not kept similar statistics (3). MTMCWA monitors the on-hand personal property shipments on a weekly basis and uses a 95% standard. This means that the percentage of personal property shipments on-hand that have been in the terminal over 15 days should be no more than 5 percent of the current number of shipments in the terminal (34). All other time segment standards used to calculate RDDs have been verified by HQ MTMC as accurate (13).

#### Purpose

The purpose of this research will be to verify the accuracy of the 15 day time-in-terminal standard, to recommend mutually acceptable terminal start and stop times for HQ MTMC reporting purposes, and to act as a historical source document for use by HQ MTMC in evaluating current military ocean terminal operating procedures. The accuracy of the time-in-terminal standard is crucial to the formulation of meaningful RDDs. By insuring the terminal time segment is valid, realistic RDDs can be assigned to individual personal property shipments. The RDD would then become a true measure of MTMC's capability and an effective control feature to insure on-time delivery. On-time shipments

minimize unnecessary member hardship and ease the strenuous burden of family relocation. They also result in monetary saving for both the member and the government. The former do not have to purchase, "out of pocket", extra clothes or kitchen necessities to sustain their families until the late household goods shipment arrives. Similarly, the government saves manhours due to reduced requirements to trace late personal property shipments. Finally, manhour savings can be realized at the Headquarters, area command, terminal and installation levels.

Mutually acceptable terminal start and stop times for all terminals would clarify responsibilities for the household goods shipment. Subsequent poor carrier-to-terminal performance could then be identified and the appropriate corrective actions taken by HQ MTMC.

The main objective of MTMC's personal property operations is service: getting the member's personal property to him on, or before, the RDD. To attain this goal, the ocean terminals must utilize an accurate time-in-terminal standard, reflective of actual operational capability, to control their personal property functions. In addressing the adequacy of this service objective we hope that this research may ultimately lead to the standardization of military ocean terminal operations with respect to personal property shipments.

## Scope

This research will focus on the operating procedures and related times required to process import and export personal property shipments transiting CONUS military ocean terminals. Specifically, each category will be examined as follows:

Import Personal Property Shipments. From the day the ocean carrier discharges the shipment until the day the land carrier picks it up for onward movement.

Export Personal Property Shipments. From the day the land carrier is relieved of shipment responsibilities by the terminal until the day the shipment is loaded on a vessel for onward movement.

## Limitations on the Scope of the Study

DPM and Code 5 personal property shipments are processed using similar procedures. Therefore, the report will only address the processing of Code 5 shipment through military ocean terminal. In addition, only CONUS Ports will be studied, no overseas military ocean terminals will be included due to time and manpower limitations.

Since very little research has focused on this topic, the main emphasis of this report will be on problem formulation. It is hoped that recommendations resulting from this study will provide the basis for future investigative research.

## Background

The President, the Secretary of Defense, and senior military leaders have long recognized that the most critical

segment of the Armed Forces is its people. Because the men and women of our Armed Forces are so important, numerous "people" programs have been established to assist them and their families with situations unique to the military. One particular situation facing each military member is the PCS (Permanent Change of Station) move. The nature of the military dictates frequent moves to all parts of the world. Captain Jordana and 1Lt Garrity reported in their research on PCS moves that "it is not unusual for the military member and his family to change residences twelve to fourteen times during his tenure of service" (31:5). Under the Joint Travel Regulations, military members are authorized to have their personal property shipped at government expense when undergoing a permanent change of station (PCS) move (21:8-45).

In FY 1983 the Department of Defense (DOD) Personal Property Movement and Storage Program (PPMS) spent nearly 1.4 billion dollars to cover the costs of approximately 800 thousand shipments of personal property (2:1-1). The Commander of MTMC is charged with the responsibility to be the "sole negotiator, worldwide, with household good carriers and storage firms for rates or other matters incidental to the transportation and storage of personal property" (22:3-1). The worldwide management of the PPMS program falls under the purview of the Personal Property Directorate of MTMC. Its stated mission is to "promote reenlistment and

retention of military personnel through high quality moving and storage services at the lowest overall cost to the government" (2:3-3).

#### Effects of Late Shipments on the Service Member

From a motivational standpoint, factors associated with a PCS move can be related to basic human needs that must be satisfied. In Motivation and Personality, Abraham H. Maslow proposed the following five-level hierarchy of human needs: (1) physiological, (2) safety, (3) social, (4) ego, and (5) self-actualization. The five levels of need, beginning with the most basic (physiological) and progressing to the most complex (self-actualization), represent the order of importance to the individual. Each level must be reached in order; that is, lower order needs must be satisfied prior to satisfying higher level needs. In addressing safety as the second-level in the hierarchy, Maslow includes needs such as security, stability, dependency, protection, and structure (33:136). Personal possessions provide, in varying degrees, a source for satisfying these safety needs. In our materialistic society people identify themselves with their personal possessions, so those possessions become an extension of our personality. To deprive an individual of his/her property, especially during a stressful relocation can impinge upon his safety needs and, in turn, impede the service members ability to seek the higher level needs which are more directly related to excellence in job performance. The

adverse affects on motivation and subsequent productivity are costly to both the service member and the organization. It is an accepted tenet that good morale makes a good serviceman. An important morale factor is the timely delivery of a service member's household goods. Late arrival results in great inconvenience to both the member and his family. Bob Waldman, Deputy Director of the Directorate of Personal Property, HQ MTMC states:

A household goods move is always traumatic. At best, it means uprooting a family and adjusting to a new environment. Often there are children changing schools, losing friends. Always there's the getting ready -packing and sorting - deciding what to discard and what to take. There's usually a lengthy transit and nights spent in strange surroundings. The last thing our members need is lost or damaged items in their shipment, or delays, or just plain "hassle" from the carriers representative (50:6).

To contend with late arriving household goods shipments, the service member may be forced to buy replacement items immediately or "wait it out" by living in a hotel and eating out at restaurants. This financial burden can also adversely affect morale. According to Brigadier General Otis E. Winn, former MTMC Commander, "late deliveries cause considerable inconvenience and financial hardship; often playing havoc with family finances to the extent that a lifetime's savings may be consumed awaiting the delivery of one's belongings" (51:30). Kathy Akerland, a doctoral student in counselling, in an article in the Air Force Times stated:

The stress of a PCS move can magnify seemingly small problems into insurmountable obstacles causing major reactions not typical of the person. This may bring about such problems as poor job performance, substance abuse and child/or spouse abuse. Any behavior is possible, up to and including suicide (1:5).

Records of Congressional complaints indicate that many men and women separate from the military establishment because of poor service and excess personal cost associated with the movement of their personal property. With many military skills in short or critical supply, the Armed Forces can ill afford to lose its manpower because of a poorly handled move.

#### Conus Military Ocean Terminals

The military ocean terminals in CONUS are operated by MTMC's two major subordinate commands - MTMC Eastern Area (MTMCEA) and MTMC Western Area (MTMCWA). MTMCEA monitors the terminals at Bayonne, NJ, Norfolk, VA, and Gulf Outport, LA. MTMCWA monitors the terminals at Oakland, CA, Seattle, WA and San Pedro, CA. The process for moving household goods shipments through any of these terminals is highly segmented and involves three-to-five separate organizations each accomplishing between four and six individual actions. Appendix A provides an example of the steps involved in moving an export shipment through the military ocean terminal at Bayonne, NJ (48:2).

MTMC Eastern Area Regulation 55-43, dated 12 March 1981, states that "no shipment will be permitted to remain

in military terminals and outports for more than 15 days unless it is for reasons beyond the control of the terminal/port commander." Appendix A of this same regulation defines time-in-terminal as the date of actual receipt of the property to the date of loading the vessel (date of lift) (19:2).

MTMC Western Area Regulation 55-6, dated 15 November 1983, establishes a 15 day time-in-terminal for export personal property shipments but does not establish a time-in-terminal standard for import personal property shipments. Like MTMCEA Regulation 55-43, MTMCWA Regulation 55-6 defines time-in-terminal to be from "the date of arrival at terminal/outport until the date the shipment departs on a vessel (commercial or Military Sealift Command (MSC))" (20:1).

#### MTMC Objective

A specific objective of the Directorate of Personal Property is to assure the delivery of a service member's personal property on time and in good condition. The on time element (meeting the RDD) is an obligation of service that MTMC has set out to improve. A statement to all DOD transportation managers from HQ MTMC addressed the RDD problem: "Construct realistic required delivery dates. Live in a world of reality. Establishing unrealistic delivery dates simply frustrates members. Better to let them plan with a date that is reasonable" (50:7).

Richard J. Constable, a traffic management supervisor assigned to the Directorate of Personal Property at HQ MTMC,



reported that in 1979, fifty-one percent of shipments destined for overseas were delivered late (i.e., exceeded the RDD) (14:8). Statistics reported for the last quarter (July-September) in fiscal year 1984 indicate that 70.5 percent of all personal property shipments were delivered on-time (36). Although this is an improvement over the 1979 figures, the fact remains that over 29 percent of all shipments destined to overseas locations are received later than the member expects. This produces unnecessary stress on the military member and results in his facing unplanned monetary outlays to purchase everyday necessities until his personal property arrives.

#### Research Objectives

The objectives of this research are:

a) to substantiate whether or not the current 15 day time-in-terminal standard is an accurate measurement of the actual time a household good shipment spends at a CONUS military ocean terminal.

b) to determine the current operating procedures and corresponding time segments within each CONUS terminal with respect to import and export personal property movements, as follows:

1) For import personal property shipments, the processes involved from date discharge is complete from a ship to the date the shipment is picked up by a carrier for onward movement were investigated.

2) Similarly, for export personal property shipments, the processes involved from the date of receipt from a carrier to the date the shipment is actually loaded on the vessel were studied.

c) to identify any unique terminal operating procedures which might require a separate time-in-terminal standard.

## II. Methodology

### Overview

By definition a methodology is a system of methods used to conduct scientific inquiry (26:895). This chapter describes the methods used to accomplish the research objectives presented in Chapter I. For review, those objectives are restated here:

1. to substantiate as accurate the 15 day time-in-terminal standard for Code 5/DPM personal property shipments.
2. to determine the current operating procedures and time segments, for import/export of personal property shipments at each terminal.
3. to identify any unique terminal operating procedures requiring a separate non-standard time-in-terminal.

Several investigative methods were employed to achieve the above stated objectives. The following techniques formed the major components of our methodology: (1) documentation review, (2) interview, (3) flowcharting, and (4) statistical analysis. These components represented a practical and balanced approach to achieving the research objectives. The remainder of this chapter describes the background and significance of each component of the methodology and details the specific application of each component in accomplishing those objectives.

### Analysis of Research Methods as Applied to Objectives

Objective One: 15-Day Time-in-Terminal Standard. A statistical analysis was undertaken to determine the percent-

tage of shipments exceeding the 15 day standard. To make this analysis more meaningful and useful, two types of percentages were calculated: An overall percentage combining the data from all terminals, and individual terminal percentages using data unique to that terminal.

Information Gathering. The process of gathering information required both a collection of available data and the manipulation of new data. The available data was acquired from HQ MTMC International Traffic and was composed of historical time segments tracking terminal movements of export and import personal property. Each of the five ocean terminals were sampled using data from fiscal year 1984 for the export shipments and fiscal year 1985 for the import shipments. There is a time-frame difference for the data because fiscal year 1984 import data was not available (15). Additionally, import data analysis for Eastern Area (EA) terminals was not accomplished. The sample EA import data, collected by HQ MTMC, was garbled due to a change in the import data format used (40). Specific tailoring of output was accomplished to facilitate the identification of shipments exceeding the 15 day time-in-terminal standard. From the resultant information, all export and import personal property shipments passing through the individual terminals were grouped according to transit time as follows:

- a) 1 to 8 days
- b) 9 to 15 days
- c) 16 to 30 days
- d) 31+ days

This information was manipulated further for export personal property shipments to permit a more in-depth analysis of the total number of shipments bound for the same destination port or point of debarkation (POD) with respect to those same transit times. PODs are significant because time-in-terminal is sometimes affected by the peculiarities of a destination port (i.e. number of ship sailings each month). Appendices B and C provide the information by category that was used to accomplish the export and import analysis.

Statistical Test. The particular statistical test that was employed was a large sample test of a hypothesis about a proportion. This test is used when examining a random variable that follows a binomial distribution and when the sampled results are classified as either acceptable or unacceptable (28:296). For the purposes of this research, 15 days or less time-in-terminal was deemed to be acceptable, while greater than 15 days time-in-terminal was classified as unacceptable.

MTMC Area Command guidance has established a 15 day time-in-terminal standard for processing shipments through the terminals. As a goal each Area Command has set a 95 percent effectiveness rate for meeting this standard. Therefore, if the goal is to be met, five percent or fewer shipments should exceed 15 days time-in-terminal. Proportional testing will determine with a high degree of confidence whether the terminals have exceeded the five percent

mark. The tested, or null, hypothesis, states that the proportion of shipments exceeding the 15 day time-in-terminal standard is five percent. The alternate hypothesis opposes the null stating that the proportion of shipments exceeding the 15 day time-in-terminal standard is greater than five percent.

The null hypothesis is tested on the basis of the evidence contained in the sample. The hypothesis is either rejected, meaning the evidence from the sample casts enough doubt on the hypothesis for us to say with some degree of confidence that the hypothesis is false, or accepted, meaning that it is not rejected (11:75).

A test statistic was computed from the sample data and used to decide whether to accept or reject the null hypothesis. Since the test statistic was computed utilizing sample data, it can be "used to determine how close a specific sample result falls to one of the hypothesis being tested (27:352). Any extreme value of the test statistic would suggest the null hypothesis should be rejected. The observed significance level, or p-value, for the statistical test expresses the probability of obtaining an extreme test statistic when the null hypothesis is true.

The critical value (rejection region) used in making a decision to accept or reject the null hypothesis was set at 0.05. A critical value of 0.05 gives a five percent chance of deciding in favor of the alternate hypothesis if in fact the null hypothesis is true (Type I error). The null hypothesis is rejected and the alternate hypothesis accepted if the observed significance level is less than or equal to

the critical value. An observed significance level greater than the critical value would indicate that there is insufficient evidence to reject the null hypothesis.

If proportional testing showed that a terminal had exceeded the five percent value (more than five percent of the shipments exceeded the 15 day time-in-terminal standard), then a confidence interval was constructed that contained the true percentage of shipments that exceeded the 15 day time-in-terminal standard. The constructed interval was built on a 95 percent confidence level. Appendix G details the complete mathematical design used for the statistical test.

Objective Two: To Determine the Current Operating Procedures, Time Segments, and Control Documentation at Each Terminal. Four methodology components were used to address this objective: (1) preliminary interviewing, (2) documentation review, (3) follow-up interviewing, and (4) flowcharts.

Preliminary interviewing consisted of two days of face-to-face meetings with HQ MTMC personnel. The questions posed were open ended in nature and the responses were not task qualified for statistical analysis. The three main objectives of initial interviewing were to: (1) gather essential background information to aid in formulating the research problem, (2) gain insight into procedural processes, and (3) acquire advice on appropriate documentation to review. The following interviewees were selected based on

their expertise, position of responsibility in the organization, and familiarity with the problem:

Colonel Nathan Berkley, USA  
Director of Personal Property  
HQ MTMC, Washington DC

Lt Colonel Jesse Worthington, USAF  
Director of Personal Property Operations Division  
Personal Property Directorate  
HQ MTMC, Washington DC

Mr. John Hanson, GM 15  
Deputy Director of Personal Property Operations Division  
Personal Property Directorate  
HQ MTMC, Washington DC

MSGT Richard J. Constable, USAF  
Operations Division Action Officer  
Personal Property Directorate  
HQ MTMC, Washington DC

Major John Flannery, USAF  
Director of Terminals Division  
Directorate of International Traffic  
HQ MTMC, Washington DC

Mr. Joe Crandal GS 12  
Terminal Divisions Action Officer  
Directorate of International Traffic  
HQ MTMC, Washington DC

Most of the preliminary interviews were done on an ad hoc basis using the team approach. While one team member directed the interview, the other recorded key responses for later reference. One important result of this preliminary interviewing was guidance as to the extent and availability of pertinent documentation.

Documentation review was the second approach used to achieve objective number two. While at HQ MTMC, files, information and background papers, informal operating procedures, and individual terminal stevedore contracts were



reviewed. In addition the following documents were examined:

DOD 4500.34-R	<u>Personal Property Traffic Management Regulation</u>
HQ MTMC Reg 10-1	<u>Organization, Mission, and Functions</u>
HQ MTMC Reg 10-2	<u>Organization, Mission, and Functions</u>
MTMCEA Reg 55-43	<u>Transportation and Travel, Import/Export Personal Property Movement Control</u>
MTMCWA Reg 55-6	<u>Transportation and Travel, MTMCWA Daily/Weekly Activity Report</u>

Specific documentation regarding procedures for the movement of personal property was requested via a HQ MTMC action message (see Appendix D). Receipt of this data allowed for a more detailed investigation of individual terminal procedures.

The third technique utilized was follow-up telephone interviewing of message addressees. As a consequence of the documentation obtained via the MTMC sponsored action message, it was necessary to clarify and revalidate certain information. Follow-up telephone interviews were conducted to expand the data. A basic fact-finding interview guide was used to verify personal property movement procedures and time segments (See Appendix E). The points of contact identified in the message were contacted via a telephone follow-up interview. Their names and office symbols are listed below:

Mr. Bernard F. Esposito, MTE-ITT (MTMC Eastern Area HQ)  
Mr. Andy Volpe, MTE-BY-FTDP, (Bayonne Terminal)  
Mr. James Lockridge, MTE-GUL-FT (Gulf Outport)  
Ms. Kay Moore, MTW-ITT (MTMCWA HQ)  
Mr. John Seaton, MTW-S-FT (Seattle Terminal)  
LCDR Donald G. Sheffo, Socal OPT (Socal Outport)

LT COL Robert Golling, MTW-O-F (Oakland Terminal)  
Mr. Grant Ivory, MTW-C-F (Oakland Terminal)  
Mr. Joe Parker, MTW-O-F (Oakland Terminal)

Flowcharting was the final approach used in achieving objective number two. Flowcharting provides a graphical representation of the sequence of procedures, time segments, and control documentation related to a personal property shipment as it moves through the terminal system. Flowcharts were deemed necessary to track the physical movement of the shipment and the documentation or paperwork flow. Because of the differences between import and export operational activities and documentation, it was necessary to construct both import and export diagrams utilizing flow charts for each of the five ocean terminals.

The flowcharts (found in Chapter III) show the sequence of import/export operations that occur in moving a personal property shipment through the terminal. A block diagram format was used in preparing the diagram. Each block represents a shipment processing/documentation activity and the arrows between blocks depict shipment movement or flow. Emphasis was placed on identifying the paperwork processes that impact or influence the physical movement of personal property shipments.

Objective Three: Identify Operating Procedures Requiring a Separate Non-Standard Time-in-Terminal. The same four techniques used for satisfying objective two were applied here. Documentation review, initial and follow-up inter-

viewing, and flowcharting were utilized to identify differences between ocean terminals with regard to operational procedures and/or environment. With respect to documentation review, a comparison of Longshoreman's contracts was made to detect any significant differences that might affect the 15 day time-in-terminal standard.

### Summary of Methodology

The methodology presented in this chapter was designed to achieve specific research objectives. Table 2.1 summarizes the specific investigative techniques and tools and matches them against each research objective. The subsequent application of this methodology is contained in Chapter III.

TABLE 2.1  
Research Objectives Matched to Appropriate Components  
of Methodology

Methodology Components: Techniques and Tools	Research Objectives		
	1	2	3
Documentation Review		x	x
Interviews		x	x
Flowcharting		x	x
Statistical Analysis	x		

### III. Time-in-Terminal Analysis

#### Overview

This chapter presents an analysis of our research effort with respect to identifying current CONUS military terminal time standards, procedures, and terminal performance for Code 5 and DPM personal property shipments. Our investigative process of documentation review, personal interviews, and telephone interviews showed that MTMC Eastern Area and Western Area commands along with their respective ocean terminals have developed monitoring programs, regulations, and performance standards which have both similar and diverse characteristics. To adequately address these similarities and differences we have separated the body of this chapter into four major sections:

(1) Western Area command regulations, booking procedures, personal property monitoring programs, and performance standards.

(2) Individual Western Area terminals with regard to shipment flow and performance.

(3) Eastern Area command regulations, booking procedures, personal property monitoring programs, and performance standards.

(4) Individual Eastern Area terminals with regard to shipment flow and performance.

We conclude this chapter with a summary of our findings, an inclusion of major differences noted between Area

Commands, and a statistical summary of terminal performance, command performance, and overall performance with respect to meeting the 15 day time-in-terminal standard. Appendix F contains the sample shipment data, provided by HQ MTMC, after it was sorted by terminal into the categories of 1-8 days, 9-15 days, 16-30 days, and 31 plus days.

Data Source and Manipulations. The raw data that was received from the International Traffic Division, HQ MTMC, was sorted by individual terminal. For the export personal property shipments, the data was further sorted by destination and the date shipment received column was subtracted from the date sailed column to arrive at the number of days in terminal. This information was then sorted into four numerical categories; 1-8 days, 9-15 days, 16-30 days, and 31+ days. Individual destination percentages and an overall percentage of shipments processed within 15 days was calculated by dividing the number of shipments processed within 15 days by the respective total number of shipments. Import personal property shipments were only sorted by terminal because destination did not impact terminal time. The import shipment time in terminal was arrived at by subtracting the date discharged column from the date picked-up by the carrier column. Like the export data the individual import shipment time-in-terminal values were sorted into the aforementioned numerical categories and an overall terminal percentage of import shipments processed within 15 days was derived. Appendix H contains the computer programs used to

sort the original data.

Proportional tests and confidence intervals were accomplished for all terminals using a .05 level of confidence. In the hypothesis testing, accepting the null indicates that we had insufficient evidence at the .05 significance to conclude that the proportion of shipments exceeding 15 days time-in-terminal was greater than five percent. Rejecting the null means that there was sufficient evidence to indicate that the proportion of shipments that exceeded 15 days time-in-terminal was greater than five percent. For each terminal, the constructed confidence interval reveals, with a 95 percent confidence level, the interval which contains the true percentage of shipments in terminal over 15 days. Refer to Appendix G for complete mathematical designs.

#### MTMC Western Area

The major MTMC Western Area terminals for processing CONUS personal property shipments are Southern California Outport (SOCAL), Pacific Northwest Outport (PNW OPT), and the Military Ocean Terminal Oakland (MOTBA). All Western Area (WA) terminals use MTMC WA regulation 55-6 for guidance with respect to shipment time standards, procedures and other matters dealing with import and export personal property shipments. MTMCWA regulation 55-6 establishes a performance standard of 15 days time-in-terminal for export personal property shipments transiting MTMCWA terminals/outports. This 15 day standard is measured from the date of

arrival at the terminal/outport until the shipment leaves on a vessel (20:1). In MTMCWA regulation 55-6 there is no mention of a time-in-terminal standard for import personal property shipments. Terminals/outports are, however, required to report import personal property shipments that are in port longer than 15 days. It is assumed that 15 days is also the import personal property shipment time-in-terminal standard. Import shipment time-in-terminal is measured from the actual date of arrival of the vessel to the date the shipment is picked up for onward movement by a carrier (20:3).

Personnel in the International Traffic Division, MTMCWA, reserve seavan container space for export cargo transiting WA terminals, a process known as "booking". According to Ms. Kay Moore, "for the majority of destinations, seavan bookings are requested based upon projected on hand generation of all types of cargo. Individual shipments are offered/booked only when they are destined to hardlift areas or to areas for which there is low cargo generation. In these cases, the individual shipment is booked to an ocean carrier's terminal, and often commingled in a seavan with commercial cargo" (10). Hardlift areas are recognized by MTMC as having inadequate vessel service, and shipments to that area are authorized a premium mode of transportation to satisfy RDD requirements. In order for individual terminals to "book" a shipment, they request container space from the

International Traffic (IT) Division. Statistics maintained by IT indicate that 90 to 94 percent of all booking requests are responded to within three days of receipt, which is in accordance with the existing Military Standard Transportation and Movement Procedures (MILSTAMP) guidance of three working days (10,37).

Bookings for containers and individual shipments are based on information provided in the RDD fields of the export traffic release request. Anticipated terminal processing time at destination, and delivery time to the consignee are RDD considerations when booking shipments. Guidance published in MTMC booking regulations state that Military Sealift Command (MSC) controlled shipping will be used to the maximum when it will satisfy the RDD. The only time foreign flag service will be used is when there is no US Flag carrier available. Foreign Flag service must always be approved by MSC. In addition, container mode is preferred over breakbulk by WA. Breakbulk shipments are not loaded in seavans but are individually stowed aboard a vessel. For export personal property shipments, less than one percent go via breakbulk (10). The frequency of personal property being commingled with other freight depends on terminal cargo generation patterns for the specific destination, time of year, RDDs, van cube utilization, and single van consignee considerations. During a year of cargo movements it is estimated that about 80 percent of Code 5 and DPM personal property shipments are commingled with general cargo (10).



Based upon MTMC WA regulation 55-6, the Director of Personal Property has established a program to monitor the movement of personal property through the terminals/out-ports. Each terminal sends an activity report to the Personal Property Directorate on a weekly basis, to be received no later than 10:00 a.m. each Thursday. This report lists the current total number of personal property shipments on hand and the number that have over 15 days time-in-terminal. The report also lists the reasons for the shipment being in terminal that long and includes key information such as name of the property owner, RDD, projected onload vessel, estimated departure time (ETD), estimated time of arrival (ETA), and ETA to ultimate destination if air challenged. Although not stated in MTMCWA regulation 55-6, the Director of Personal Property has established a 95 percent thru port standard for the terminals (34). This means that of the personal property shipments on hand, no more than five percent should have accumulated more than 15 days time-in-terminal. For shipments in danger of missing their RDD, MTMCWA regulation 55-6 directs terminal commanders to take action regardless of the time spent in terminal. To determine if an export shipment will miss its RDD, terminal personnel compute ocean transit time, port of debarkation (POD) processing (15 days), incountry transit, and the destination agent processing times. No time segment criteria are mentioned for import shipments. When it is apparent

that an in terminal export or import shipment does not have sufficient time to meet the RDD, terminal commanders notify the member through the destination transportation office using a RDD notification message. Appendix D of MTMCWA Regulation 55-6 provides a sample RDD Notification message. Although this message notifies the member that his shipment will not meet the RDD, it does not request justification for using a faster mode of transport such as airlift.

#### Individual Western Area Terminals

This section will discuss the individual WA terminals with regard to shipment flow and performance. Flow diagrams will be used to show primary actions involved with processing personal property through a terminal and encompass the actions required from the date the shipment is received until it leaves the terminal for onward movement. Within each block of the diagram, major functions that occur and the times associated with completing these actions are noted. The charts do not represent all the actions or movements that are associated with processing a personal property shipment through the terminal but are an attempt to break up the processing of the shipment into major functions. The flow diagrams do represent the total time an average import or export shipment spends in a terminal. The total average time was calculated by summing the time segments associated with the major functions. These time segments were derived from message responses, personnel interviews, contracts, and regulations. What is important is not

the actual steps that occur but the total time needed to complete the processing of an import or export personal property shipment through a military ocean terminal/outport.

Terminal performance was expressed as a percent of shipments that are processed through the terminal within 15 days and measured using the one tailed test described in Chapter II. The analysis will conclude with specific comments concerning the contract used to monitor the carrier charged with processing personal property shipments for the various terminals or outports.

Pacific Northwest Outport (PNW OPT). PNW OPT is located in Seattle, Washington. All import and export personal property shipments are received/lifted at a commercial pier. Over 99 percent of the personal property shipment workload is comprised of containerized shipments, so it is rare that PNW OPT handles a breakbulk shipment. PNW OPT processes export personal property shipment for two primary areas: Alaska, and Far East destinations. The Far East destinations are Japan, the Phillipines, Korea, and Okinawa. Alaskan shipments comprise approximately 70 percent of the export shipments processed through the terminal. The average time it takes to process an export shipment (from the date the shipment is received at the terminal until the shipment is lifted) is 7 days for Alaskan shipments, 19 days for Japan/Phillipine/Korean shipments, and 28 days for Okinawa shipments (8). The time difference is due to Alaskan

shipments being manifested directly to the ocean carrier's terminal for containerization and onward movement, and lack of sufficient cargo to efficiently use a container. Current containerization standards require personnel to utilize at least 80 percent of the container's capacity to insure efficient use. Destinations which lack sufficient cargo generation, force the terminal personnel to hold on-hand shipments until enough cargo is generated to efficiently utilize a container. Alaskan shipments incur no "offering for a booking" or "receiving a booking" time as illustrated in Figure 3.1. The RDD rather than terminal time is the primary concern. Shipments that cannot meet the RDD are forwarded expeditiously and not held for consolidation; thus container loads are sometimes closed out with less than the desired cube utilization. For export personal property shipments, the primary terminal functions and associated times are also illustrated in Figure 3.1.

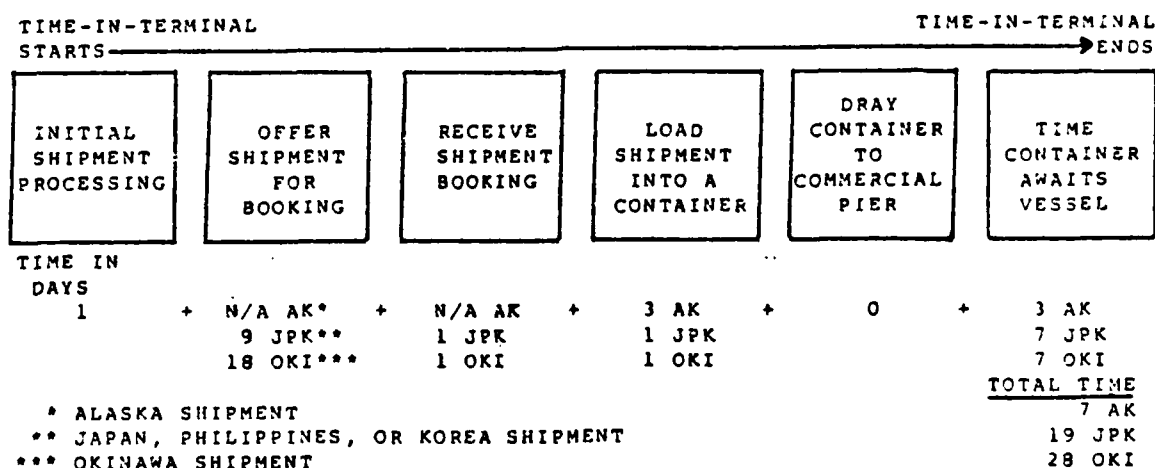


Figure 3.1 Flow Chart of an Export Personal Property Shipment Transiting PNW OPT

For import personal property received at PNW OPT, there is no time differential associated with shipments received from different destinations. The average time it takes to process an import shipment ranges from 11 to 15 days. This terminal time variance is due to differences in the time required to clear U.S. Customs, drayage times, and Government Bill of Lading (GBL) preparation time. Customs clearance averages from 1 to 5 days. For approximately 5 percent of the shipments, customs time exceeded 15 days because of documentation problems. The Customs' office is currently short-handed and personnel do not review the appropriate clearance documents until the vessel arrives (43). Import shipments are trucked from the ship's berthing area to the contractor's facility within one to two days. Depending upon the workload, GBLs and associated documentation are completed within one to three days. A flow diagram for an import personal property shipment appears in Figure 3.2.

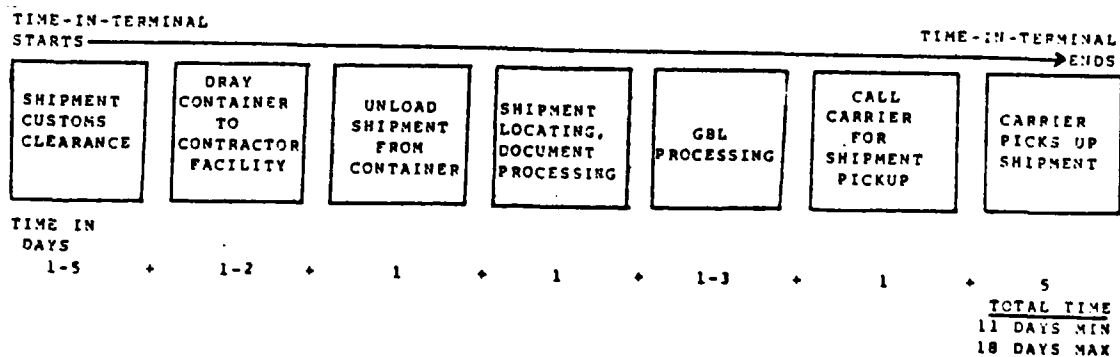


Figure 3.2 Flow Chart of an Import Personal Property Shipment Transiting PNW OPT

Data analysis for PNW OPT revealed that 86.3 percent of export and 86.2 percent of import personal property shipments clear the terminal within 15 days or less. For export personal property shipments going to Adak Island only 53.7 percent cleared within 15 days. Of the 236 total export shipments that failed to transit the terminal within 15 days, 34.3 percent were shipments processed for Adak Island. The one tailed test for both export and import shipments resulted in rejecting the null hypothesis.

In concluding our analysis for PNW OPT, a contractual review failed to identify any reference to a requirement for meeting the 15 day time-in-terminal standard for personal property shipments. It was also noted that the contract did not contain a Performance Requirements Summary (42). A Performance Requirements Summary lists, in tabular form, the services to be performed, performance standards, acceptable performance levels, and government actions required by the contract (39:89). This type of summary would be helpful to the PNW OPT staff in monitoring the contractor's performance, and would also be beneficial to the contractor in that it would outline the requirements and time frames he was obligated to meet.

Southern California Outport (SOCAL). SOCAL is located in San Pedro, California. All import and export personal property shipments are received at the commercial terminal. Containerized shipments account for 100 percent of the personal property shipment workload. FY 84 data revealed that

SOCAL processes a majority of export personal property shipments for the following PODs: Subic Bay NAHA, Pusan, Yokohama, and Naval Supply Center (NSC) Pearl Harbor. Of the export shipments analyzed, 77.4 percent were processed through SOCAL for the aforementioned destinations. According to LCDR Sheffo, Chief Freight Traffic/Cargo Operations Division, the amount of time an export personal property shipment spends in terminal varies from 8 to 15 days (9). This time variance is due to the time the shipment spends awaiting a vessel for onward movement, and can range from two to nine days depending on when the booking is received. A flow diagram illustrating the major functions and associated time segments for processing an export personal property shipment through the terminal appears in Figure 3.3.

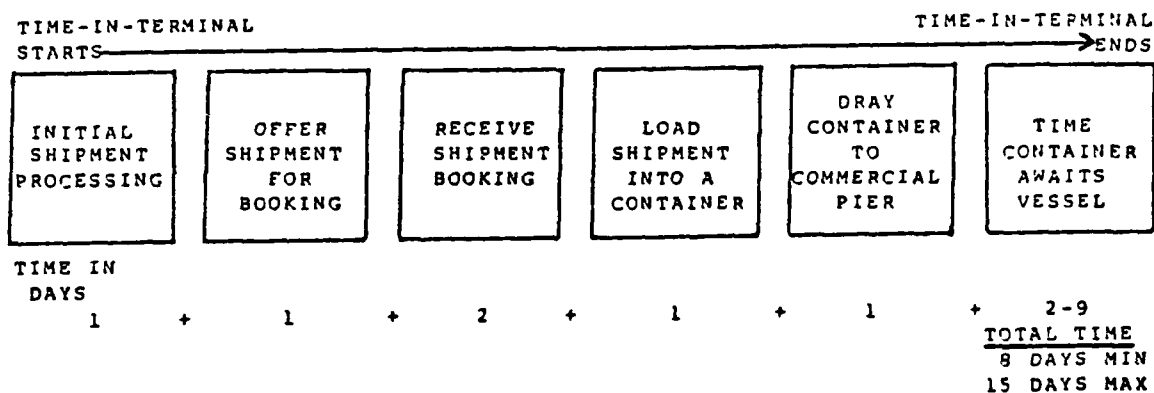


Figure 3.3 Flow Chart of an Export Personal Property Shipment Transiting SOCAL

The average time it takes to process an import personal property shipment is 12 days (44). Customs clearance is

accomplished in advance, prior to the ship's arrival. The only time shipments are delayed for customs clearance is for agricultural reasons. Rarely are shipments received without the proper documentation. Carriers are called to pick up the shipment for onward movement within one day and in many cases the carrier is called on the same day. A flow diagram for an import personal property shipment appears in Figure 3.4.

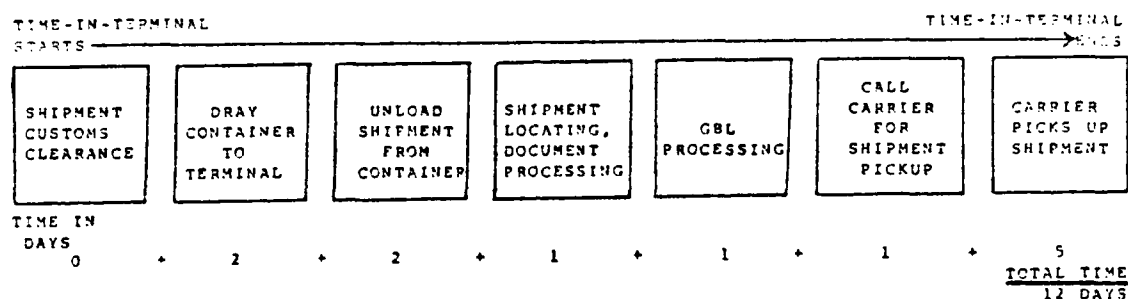


Figure 3.4 Flow Chart of an Import Personal Property Shipment Transiting SOCAL

A review of the shipment data for SOCAL disclosed that 78.8 percent of export and 69.3 percent of import personal property shipments cleared the terminal within 15 days or less. Of the export shipments that were in terminal longer than 15 days, 80.8 percent were destined to Subic Bay, Pusan, Yokohama, and Naha, Okinawa. The percentage of shipments that were processed through the individual terminals within 15 days were as follows: Subic Bay (86%), Pusan (70.4%), Yokohama (71.7%), and Naha (71.5%). The one tailed test for both export and import shipments resulted in rejecting the null hypothesis.



An analysis of SOCAL's contracts did not disclose any reference to the 15 day time-in-terminal standard. The contract does contain a Performance Requirements Summary. This summary lists a performance standard for import household goods shipments but omits specific reference to export shipments. The import standard requires the contractor to dispose of the shipment within five days after receipt of onward movement instructions (45:60). This standard does not take into account the time required to process the shipment before receipt of instructions are provided. Performance standards for all types of export containerized shipments set seven days as the average time and 20 days as the maximum time an individual shipment can remain in terminal (45:59).

Military Ocean Terminal, Oakland (MOTBA). MOTBA is located in Oakland, California. All import and export personal property shipments are received/lifted at a commercial pier. Import breakbulk shipments represent less than five percent of the import shipment workload, while export breakbulk shipments represent less than three percent of the export workload (24). The only time export personal property shipments are shipped breakbulk is when there is insufficient cargo generation or lift availability. All import breakbulk shipments are received at a military pier and all export breakbulk shipments transit via a commercial facility. An analysis of the MOTBA data base, indicated that

MOTBA's primary export destination are Subic Bay, Guam, Kwajalein Atoll, Naha, Pusan, Yokohama, Yokosaka, and (NSC) Pearl Harbor. The destinations of Subic Bay and NSC Pearl Harbor received 55.7 percent of the export personal property shipments that were analyzed. The average time required for an export personal property shipment to transit through MOTBA is ten days (6,30). The export personal property flow diagram is illustrated in Figure 3.5.

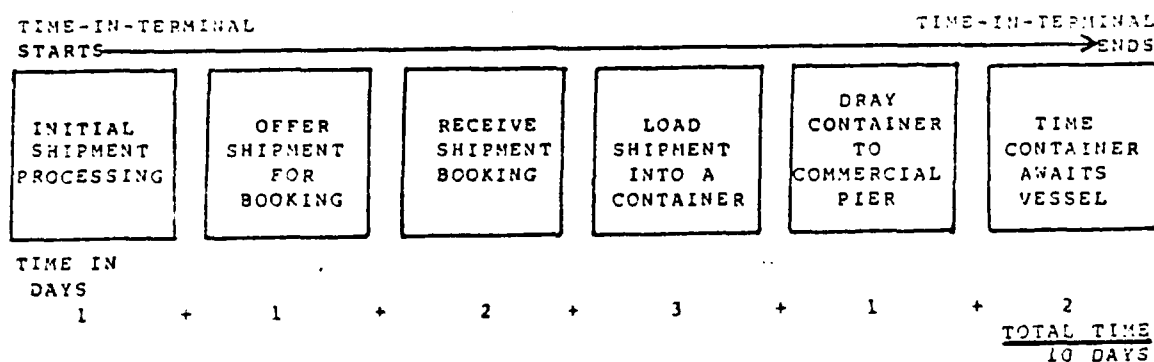


Figure 3.5 Flow Chart of an Export Personal Property Shipment Transiting MOTBA

For import personal property shipments received at MOTBA, the average terminal time is 11 days (41). These shipments are not precleared through customs. After the vessel docks, the MOTBA Shipping and Planning Section and the Customs Office sign a Permit to Transfer document. This allows the shipment to be drayed from the commercial terminal to MOTBA. Customs clearance is accomplished after the containers have been unloaded. Approximately ten percent of the import shipments received are experiencing customs prob-

lems due to improper or missing documentation. Either the DD Form 1252 (the main document used to process a personal property shipment through customs) is missing or the proper documentation for mopeds, mini-bikes, or motorcycles has not been accomplished. It appears that the member is not being properly counselled on Department of Transportation (DOT) and Environmental Protection Agency (EPA) regulations concerning these vehicles (41). At MOTBA, import breakbulk personal property shipments are handled by the contractor while civil service employees process containerized shipments. Government Bills of Lading are cut at origin for Code 5 shipments. Container unloading time varies from one to four days depending upon the number of vans received. For a normal shipload of approximately 20 vans it takes two days to unload the shipments from inside the container lot. A flow diagram of the primary terminal functions and associated times for an import containerized shipment processed by civil service personnel is illustrated in Figure 3.6.

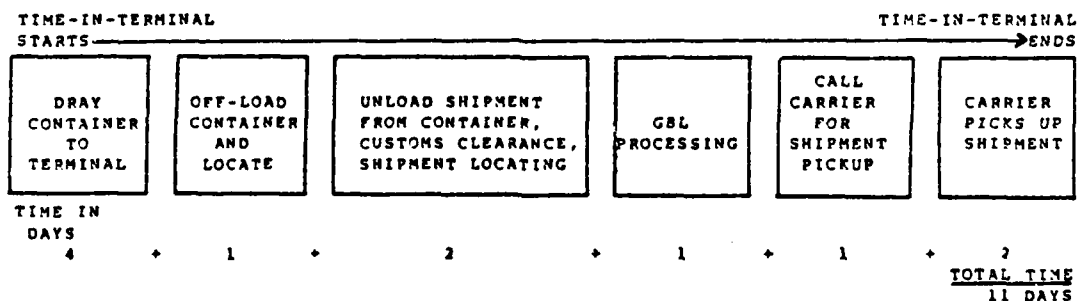


Figure 3.6 Flow Chart of an Import Personal Property Shipment Transiting MOTBA

An analysis of MOTBA's shipment data base indicated

that 31.3 percent of the export and 34.6 percent of the import personal property shipments were processed through the terminal within 15 days. Of the 258 export shipments that were in terminal over 15 days, 130 were destined to Subic Bay and Naha, Okinawa. Broken out further, 92.3 percent of the shipments destined for Subic Bay and 79.5 percent of the shipments destined for Naha were processed within 15 days. The one tailed test for both export and import shipments resulted in rejecting the null hypothesis.

An analysis of the MOTBA contract did not disclose any reference to the 15 day time-in-terminal standard for personal property shipments, nor did the Performance Requirements Summary in the contract make a direct reference to personal property shipments (38:56-58). Performance standards were written in general terms for export and import shipments. It was unclear from reading the contract as to how much total time an import or export personal property shipment could spend in terminal (38).

#### MTMC Eastern Area

The major MTMC Eastern Area terminals for processing CONUS personal property shipments are the Naval Supply Center (NSC) Norfolk (Virginia), GULF Outport (Louisiana), and the Military Ocean Terminal in Bayonne, New Jersey (MOTBY). Because of lengthy coordination requirements, and the time constraints placed on this project, HQ MTMC requested that procedural surveys for NSC Norfolk be omitted. However,

since shipment data was provided for all eastern terminals, including NSC Norfolk and other minor terminals, a statistical analysis was performed. The reader can find a breakout of all terminal results in Appendix F.

All Eastern Area (EA) terminals use MTMCEA regulation 55-43 "to prescribe responsibilities, policies, and procedures for the movement of personal property shipments" (19:1). MTMCEA regulation 55-43 establishes a performance standard for import and export personal property shipments to the effect that "no shipment will be permitted to remain in military terminals and outports for more than 15 days unless it is for reasons beyond the control of the terminal/port commander" (19:2). In Appendix A of MTMCEA regulation 55-43, time-in-terminal is measured as follows:

For import personal property shipments: "from date discharge is completed to date shipment is picked up by a carrier for onward movement" (19:A-1).

For export personal property shipments: "from date of actual receipt to date of actual loading on the vessel" (19:A-1).

It appears that MTMCEA regulation 55-43 classifies/measures time-in-terminal as being the same as time-in-port. Export time-in-terminal is sometimes defined as the time period from when a shipment is received at the terminal until the time it is containerized, and does not include the time a shipment spends waiting to be loaded on a vessel for onward movement (19:A-1). Export time-in-port is all inclusive and is measured from the date the shipment is received in terminal until it is loaded on a vessel for onward movement.

Import time-in-terminal is sometimes measured from the date the shipment is received in terminal until the shipment is picked up by a carrier for onward movement. Import time-in-port is measured from the date the shipment is discharged from the vessel until it is picked up by a carrier for onward movement. It is important that all time accrued by a shipment while it is in port be measured to insure proper formulation of minimum destination RDDs. Although terminal/output commanders do have control over the time segment from the date the shipment is received until the shipment is containerized, they have virtually no control over the length of time a containerized shipment spends on the pier awaiting vessel arrival and subsequent loading.

Export personal property shipments are booked using criteria that is similar to the procedures used in the MTMC Western Area Command. A message form MTMCEA International Traffic Division, dated 011740Z April 85, states:

- (1) Bookings are submitted by the terminals based on various factors, i.e.:
  - (a) Containers are prebooked for high volume areas based on experience factors to specific destinations.
  - (b) Bookings for all other areas are submitted as cargo generates and normally within one or two and one-half days.
- (2) As a cost avoidance measure, terminals strive to obtain a maximum cube utilization of at least 80 percent. However, terminal commanders are empowered to waive this requirement when required to meet the RDD.
- (3) Average time for obtaining bookings and relaying to terminals varies by destination and frequency of sailings. It is normally from one to three days and may go higher for hardlift areas (4).

Shipments are negotiated by the Military Sealift Command (MSC) and are booked to the maximum extent possible on commercial and MSC controlled ships. Foreign Flag service is used only when there is no U.S. Flag service available and the situation warrants the use of Foreign Flag to meet service requirements. Bookings are obtained using criteria which allows the export personal property shipments to be processed through the ocean terminals within 15 calendar days unless the RDD will permit later surface movement (19:B-4,B-5).

The Director of Personal Property, MTMCEA, is tasked by MTMCEA regulation 55-43 to monitor the effectiveness of how military ocean terminals and outports move personal property shipments. Terminals/Outports/NSC Norfolk telephone International Traffic Division each Wednesday to review the export personal property shipments on hand, and contact Personal Property Division each Tuesday to review the import shipments onhand as of the previous Friday (19:A-2). Records are maintained on a continuous basis to measure terminal performance. MTMCEA regulation 55-43 does not establish a thru port standard for the terminals. MTMCEA Command Operating Plan establishes the 95 percent thru port standard, stating that 95 percent of all personal property shipments should clear the terminal within 15 days (12). Percentages are calculated by dividing the number of import or export shipments that cleared the terminal in any given

month into the number of import or export shipments that were processed within 15 days or less for that month. Unlike MTMCWA monitoring procedures, MTMCEA procedures give a historical prospective of terminal performance and capture all shipments that have been processed. Regardless of the length of time a shipment has spent in the terminal, if it appears the RDD will not be met, Appendix B of MTMCEA regulation 55-43 specifies actions that must be taken to expedite delayed shipments so as to minimize hardships that may be encountered by the member. Appendix B identifies procedures and directs actions for all types of shipments including Bluebark (deceased member/dependent) shipments, abandoned personal property shipments, import and export Code 5/DPM shipments, and partial shipments. In addition, Appendix B provides a sample RDD notification message which not only tells the destination transportation office that a members shipment will be late but advises that, in case of a hardship, justification for airlift should be initiated.

#### Individual Eastern Area Terminals

This section will discuss the individual EA terminals with regard to personal property shipment flow and performance. Like the WA terminal analysis, flow diagrams will be used to illustrate primary actions associated with processing a personal property shipment through the terminal. The reader is again reminded that the importance of the flow diagram lies in the associated time required to complete



major functions of processing personal property shipments and not with the specific actions themselves.

Terminal performance will be expressed as a percentage of import and a percentage of export shipments that are processed through the terminal within 15 days. The one tailed test described in Chapter II will again be employed. The terminal analysis will conclude with specific comments concerning the contract used to monitor the carrier's performance with regard to personal property processing standards.

Gulf Outport (GULF OPT). GULF OPT is located in New Orleans, Louisiana. All import and export containerized shipments are received/lifted at a commercial pier. Over 95 percent of all breakbulk shipments are received at a military pier. Breakbulk personal property shipments represent less than 5 percent of GULF OPT's personal property workload (32). A review of the shipment data indicates that export personal property shipments for Bremerhaven and Rotterdam are the primary destinations serviced by GULF OPT. Of the shipments analyzed, Bremerhaven and Rotterdam comprised 75.5 percent of the total. The average time required to process an export personal property shipment is 19.5 days. This average is based on the experience of the personnel performing the associated terminal actions and a random review of 25 seavans exported in FY 84 (5). Further analysis by terminal personnel revealed that of the 25 seavans analyzed, terminal time varied from 10.1 to 29.1 days. The primary

terminal functions and associated processing times are illustrated in Figure 3.7.

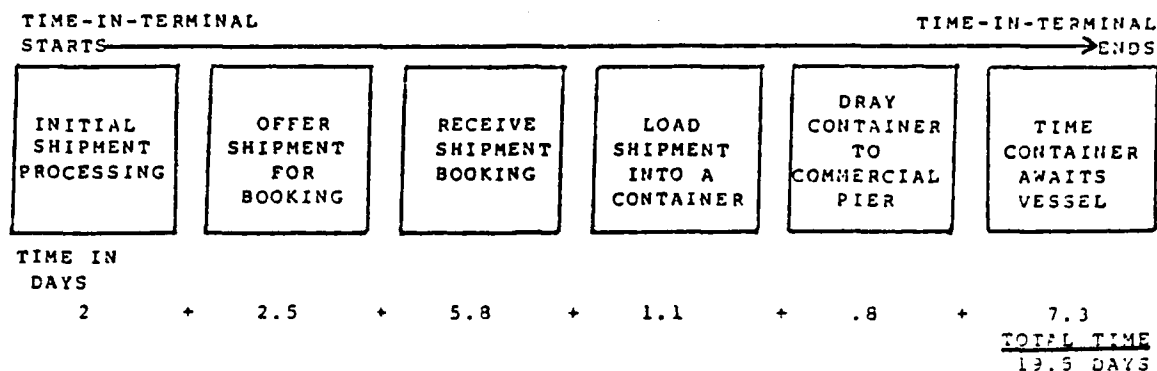


Figure 3.7 Flow Chart of an Export Personal Property Shipment Transiting GULF OPT

For import personal property shipments received at GULF OPT, the average terminal time is 15 days (32). Because a very good working relationship exists with the Customs Office, the majority of shipments are cleared with the advanced paperwork. The only time a shipment will experience a customs delay is when documentation problems arise. The MSC Container Agreement and Rate Guide (an agreement between the government and the steamship line which outlines the terms and conditions under which the steamship line will provide service to the government) allots 72 hours for the steamship line to dray the container to the terminal while the current Stevedore Contract allows another 72 hours for unloading the shipments from the containers (32). A flow diagram for an import personal property shipment appears in Figure 3.8.

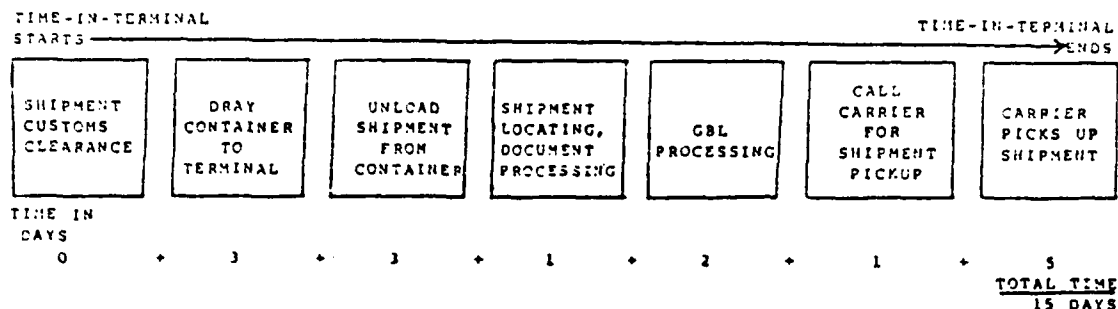


Figure 3.8 Flow Chart of an Import Personal Property Shipment Transiting GULF OPT

Data analysis for GULF OPT showed that 75.9 percent of export personal property shipments were processed through the terminal within 15 days or less (there was insufficient data available to analyze import percentages). Of the 399 export shipments that exceeded 15 days time-in-terminal, 234 were destined to Felixstowe and Rotterdam. This represents 58.6 percent of the total. For Felixstowe and Rotterdam, 36 and 81.2 percent of the shipments, respectively, were processed within 15 days. The one tailed test for export shipments resulted in rejecting the null hypothesis.

An analysis of the contract for GULF OPT did not disclose any reference to the 15 day time-in-terminal standard for personal property shipments. The contract did contain a Performance Requirements Summary which stated that import household goods shipments were allotted no more than 8 days in terminal after the receipt of disposition instructions (25:102). It was unclear from reading the contract as to how much total time an import household goods shipment could

remain in terminal prior to receipt of disposition instructions. No specific references were made to export personal property shipments in the Performance Requirements Summary.

Military Ocean Terminal, Bayonne (MOTBY). MOTBY is located in Bayonne, New Jersey. All import and export containerized personal property shipments are received at a commercial pier. There are no export breakbulk shipments. All import breakbulk shipments are received at the military pier. Thirty to forty percent of the import shipment workload is breakbulk shipments. Upon reviewing MOTBY's export data base, the primary destinations appear to be Bremerhaven and Rotterdam, which together account for 55.4 percent of the shipments processed. The average time it takes to process an export shipment ranges from 9 to 35 days (7). This terminal time variance is due to variable times associated with booking functions and the time waiting for lift. Since the Stevedore Contractor is compelled (by contract) to offer personal property shipments for booking only once a week, terminal time could range from one to seven days. Bookings are received by the contractor normally 3 to 5 days after they are offered (7). Shipments have been known to sit at a commercial pier from 1 to 19 days awaiting the vessel for onward movement (7). A flow diagram of the primary terminal functions and associated times for an export personal property shipment is illustrated in Figure 3.9.

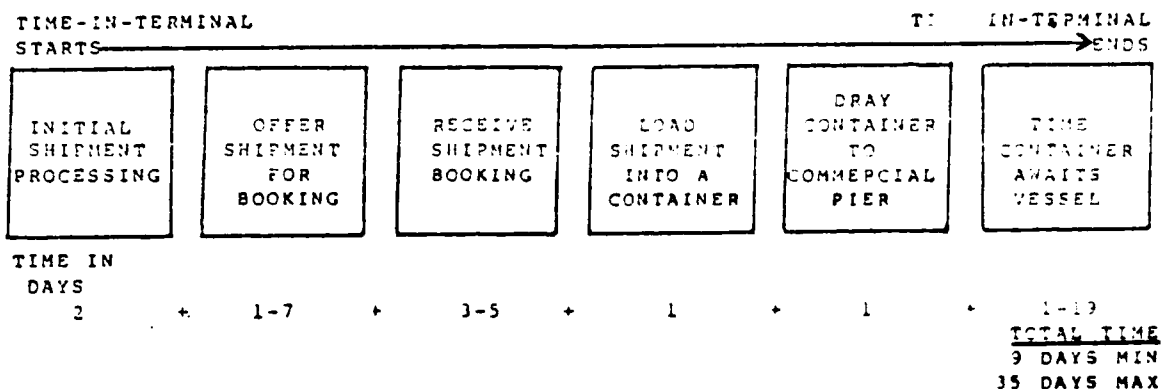


Figure 3.9 Flow Chart of an Export Personal Property Shipment Transiting MOTBY

For import personal property shipments received at MOTBY, the average terminal time is 15 days (49). Import shipments are normally cleared with the advanced paperwork, before the ship docks. However, in 5 to 10 percent of the shipments, customs clearance takes from two to four days. These shipments must be inspected by customs because they were not checked at origin or because they were identified as having possible contraband or unusual quantities of certain items. GBL processing requires from one to three days depending upon the workload. Carriers are called for shipment pickup within two days, though many are notified earlier. For an import personal property shipment, the primary terminal functions and associated times are illustrated in figure 3.10.

Data analysis for MOTBY, revealed that 66.1 percent of export personal property shipments cleared the terminal within 15 days or less (import data not available). Although 78.8 percent of the shipments destined to Rotterdam

were processed within 15 days or less, 195 shipments were still in terminal over 15 days. Of the 750 total shipments that were in terminal over 15 days, 417 or 55.6 percent were bound for Keflavik, Bremerhaven, Rotterdam, and NSC Pearl Harbor. The one tailed test for export shipments resulted in rejecting the null hypothesis.

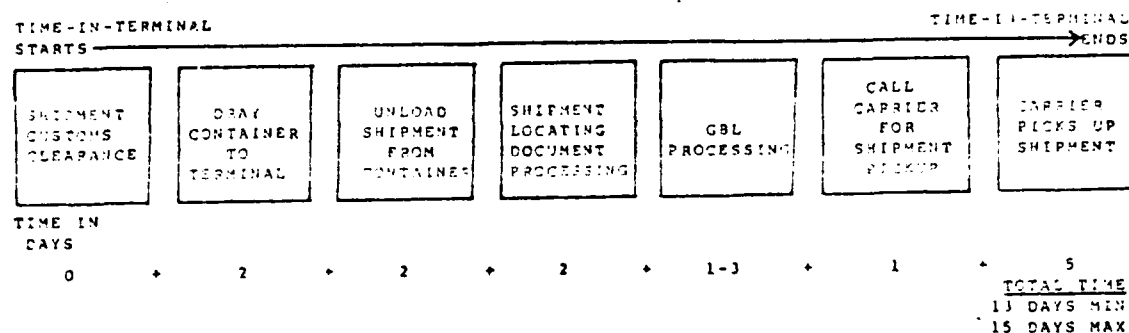


Figure 3.10 Flow Chart of an Import Personal Property Shipment Transiting MOTBY

A contractual review failed to surface any reference to meeting the 15 day time-in-terminal standard for personal property shipments. The contract did contain a Performance Requirements Summary that referenced import and export household goods shipments. For export shipments the maximum terminal time allotted is 8 days, commencing "upon receipt of the shipment" (39:89). Like GULF OPT, the import shipment terminal time was limited to a maximum of 8 days, again commencing "upon receipt of the shipment" (39:87). Neither of these standards included all the terminal functions associated with processing a personal property shipment through the terminal. A final observation noted that the

time-in-terminal for an import personal property shipment did not start until the date the terminal warehouseman signed-in the shipment (49). This date is after the ship has discharged and drayed the shipment to the terminal.

### Analysis Summary

The analysis of CONUS military ocean terminal/outport standards, regulations, contracts, and personal property shipment data offer several findings of potential value.

Finding One. Eastern Area and Western Area Commands have developed standards and procedures for monitoring terminal performance with regard to processing personal property shipments within the 15 day time frame. In the absence of a HQ MTMC regulation that outlines specific time-in-terminal criteria, Area Commands have developed performance standards and procedures that differ.

Finding Two. For export personal property shipments, the RDD is a key factor and appears to take precedence over the 15 day time-in-terminal standard when requesting a booking. However, there are no clear procedures to aid in determining if a shipment will miss the RDD. The lack of published guides listing critical standards for monitoring sailing time, POD terminal time, and delivery time to the destination transportation office often results in inaccurate RDD determination.

Finding Three. Computer reports used by Area Commands and terminals to monitor terminal performance differ. There

exists a potential to standardize personal property computer generated reports and realize savings in computer run time and software maintenance.

Finding Four. The time specified in the contract for processing a shipment varies between terminals. This together with the fact that contract performance requirements were often vague and too general, made it impossible to determine from the contract language if specific personal property shipment time thresholds were set.

Finding Five. Analysis of the sample data provide by HQ MTMC indicates that the 15 day time-in-terminal standard is not being met. Table 3.1 summarizes the data.

Table 3.1  
Percent of Shipments Processed Within 15 Days

Individual Terminals/ Area Commands/Total	Import	Export
PNW OPT	86.2	86.3
SOCAL	69.3	78.8
MOTBA	34.6	91.3
GULF OPT	NA	75.9
MOTBY	NA	66.1
Western Area	48.5	86.7
Eastern Area	NA	72.7*
Total Command	NA	79.5**

notes: NA denotes data not available  
 \* includes all Eastern Area terminals (See Appendix F for listing)  
 \*\* Western and Eastern Areas combined



The analysis and findings presented in this chapter form the basis for the recommendations and conclusions presented in the following chapter. Suggestions for simplifying and improving the current CONUS personal property shipment time-in-terminal monitoring program will be offered. Finally, other areas impacting personal property shipments and time-in-terminal will be identified for future research.

#### IV. Summary, Recommendations and Conclusions

##### Summary

The major purpose of this thesis was to investigate the accuracy of the 15 day time-in-terminal standard, and to act as a source document for use by HQ MTMC in evaluating both military ocean terminal operating procedures and terminal shipment time responsibility for personal property. To achieve this purpose specific methodologies were applied to attain specific objectives (presented as an analysis of findings in Chapter III). The results of those findings provided the recommendations that are presented below.

##### Recommendations

Recommendation 1. The Directorates of International Traffic, Personal Property, and HQ MTMC should develop, in concert, a regulation to cover personal property movements through military ocean terminals and outports. This regulation should include as a minimum the following:

- (a) International Traffic and Personal Property Directorate responsibilities
- (b) Standardization of Area Command Performance Standards for Eastern Area and Western Area
- (c) Definition of time-in-terminal and time-in-port standards
- (d) Methods for determining RDDs
- (e) Circumstances when excessive time-in-terminal may be permissible

(F) Provisions for airlifting a shipment that is in danger of missing its RDD

No HQ MTMC regulation currently exists which outlines specific time-in-terminal procedures or standards for personal property shipments transitting military ocean terminals or outports. Because of the lack of a guiding regulation, EA and WA commands have developed performance standards that differ. Whereas WA takes a weekly snapshot of the number of shipments that are on-hand over 15 days, EA determines terminal performance from a historical viewpoint and is able to determine how many shipments were in terminal for over 15 days in monthly increments. EA, WA, and HQ MTMC differ in their time-in-terminal standard for import personal property shipments: HQ MTMC uses seven days in terminal for import shipments (29), EA uses 15 days in terminal (19) and there is no mention of an import standard in WA regulation (20). HQ MTMC regulations are void of any reference as to the methodology by which RDD standards are computed for Code 5/DPM personal property shipment destinations. Currently an unofficial guide called the "Bluebook" is used to assign minimum RDD standards to shipment destinations. This guide lists all the time segments required for a shipment and procedures on how to calculate destination standards. Both EA and WA regulations (MTMCEA Regulation 55-43 and MTMCWA Regulation 55-6) have provisions to follow in cases where good traffic management practices dictate holding a

shipment in terminal longer than the 15 day standard. However, the procedures are not clear as to how to determine when an RDD is in danger if the shipment is held longer than 15 days. The procedures are also not clear as to how to determine when an RDD is in danger if the shipment is in terminal less than 15 days. Procedures should be developed that specifically identify the number of shipment days from POE to destination to include: sailing time, port handling time at the POE, and delivery time to the destination transportation office. Development of such procedural time segments would allow the terminal or outport to better answer the following questions: (1) Will the RDD be missed and by how many days? (2) Should a message be sent to the responsible destination transportation office notifying the member that his shipment will be late and requesting justification for airlift due to member hardship?

Recommendation 2. Standardize computer reports used by EA and WA commands to monitor time-in-terminal for personal property shipments. EA report, RIN 607708A allows for a historical computation of terminal export performance for the month. It lists the number of shipments processed the previous month and how many were in terminal over 15 days. This report further breaks the shipments down by destination based on four time categories: 1-8 days, 9-15 days, 16-30 days, and 31 plus days. Destination or geographic area analysis can be performed to see if export shipments booked to certain destinations continually exceed the 15 days time-

in-terminal standard. WA report, RIN W607094P, enables the terminal to take a snapshot look at the current terminal performance. However, a false impression may be given by that port. Since WA terminal activity reports are generated every Thursday, it is possible for shipments to be received on a Friday and be lifted on the third Wednesday following the received date. If that happens, the property could spend 20 days in terminal, and never be reported as exceeding the 15 days time-in-terminal standard.

Recommendation 3. Generate a historical report on import personal property shipments that is similar to the data provided by EA export time-in-terminal report, RIN 607708A. This import report should provide the following information: the date shipment is discharged, the date it is received in the terminal, the date the carrier called for pickup, and the date the carrier actually picked up the shipment. A report of this nature would allow time-in-terminal monitoring, contractual monitoring of any shipping lines required to bring shipments to the terminal from the commercial piers, and Code 5/DPM carrier monitoring to insure pick-up of the shipment in the required time frame.

Recommendation 4. Develop a mini-RDD program or negotiate with the carriers to extend the RDD based on the number of excessive days the government needed for POE terminal time, sailing time, and POD terminal time. Currently there are no effective procedures to discipline carriers for late

Code 5 personal property shipments. This is because the monitoring of shipment time segments involving transfer of responsibility from the carrier to the government and back again are vague. A mini-RDD program would specify two distinct RDDs; one from the member's residence to the POE, the other from the POD to final destination. Although additional workload may be required, carrier responsibility for RDD would be clearly defined. An alternative to the mini-RDD program would be to give the carrier additional time to deliver the shipment to destination based upon the actual number of days the government was in possession of the shipment. For every additional day the government exceeded the time-in-terminal standards for POE, POD, and sailing time, the carrier would be given an additional day to deliver the shipment. Monitoring could be conducted by HQ MTMC based on a computer report listing date picked up at residence, date delivered to POE, POE terminal time, sailing time, POD terminal time, and date delivered to destination.

Recommendation 5. Standardize terminal contract standards and language with respect to personal property shipments and require the use of a Performance Requirements Summary in the contract to highlight contractor commitments. Standardized performance standards and language would allow for universal use of like computer products. Contract monitoring would be simplified and personnel transferred from one terminal to another would have little difficulty familiarizing themselves with the new contract. Potential cost

savings are possible through joint use of computer products to monitor contract performance. Requiring the use of Performance Requirements Summary would outline contractor responsibilities and establish time frames for task accomplishment. This type of summary would be helpful to the contractor and also be invaluable in monitoring contractor performance.

Recommendation 6. Convene a one time conference of HQ MTMC, EA and WA command, and selected terminal personnel to discuss the forementioned recommendations. At this conference International Traffic and Personal Property personnel could discuss needed program modification. In addition all the computer reports generated to monitor personal property shipments could be reviewed for possible consolidation and standardization.

Recommendations for Further Research. In regard to time-in-terminal and personal property shipments transiting military ocean terminal, several areas are in need of further investigative research.

Research Area 1. Investigate overseas military ocean terminals and processing points of personal property shipments to see how their operations compare to Eastern and Western Area command procedures and standards. If differences are identified and addressed, the result could be a world-wide standardization of procedures.

Research Area 2. Conduct an analysis of the

paperwork flow in military terminals in an effort to streamline, automate, standardize, and/or delete unnecessary documentation. The potential exists to reduce the documentation requirements for personal property shipments, to simplify current procedures and to reduce the 15 days time-in-terminal requirement.

Research Area 3. Conduct an analysis of computer generated monitoring reports used worldwide in an effort towards consolidation and standardization. Research of this nature could lead to the elimination or consolidation of reports that provide duplicate information.

Research Area 4. Investigate the potential for establishing different time-in-terminal standards for different destinations based upon shipment volume generated and frequency of sailings. Research in this area may enable adjustments in current RDD calculations to reflect real world conditions. Not all destinations are served with the same frequency of sailings and time-in-terminal standards as well as RDD construction should take that into account.

### Conclusions

The 15 day time-in-terminal standard is a critical planning factor used by HQ MTMC in formulating minimum RDDs, and therefore must be accurate to prevent establishing unreliable minimum destination RDDs. Inaccurate RDDs result in unnecessary administrative costs to the government and financial and mental hardship for the member.



Analysis of the sample data provided by HQ MTMC indicates that no terminal is currently achieving a 95 percent effectiveness rate with regard to meeting the 15 day time-in-terminal standard. For export personal property shipments, this can be attributed in part to the current procedures of satisfying RDD requirements first and considering the 15 day time-in-terminal standard second. It is possible to keep a shipment in terminal longer than 15 days and still make the RDD because assigned RDDs are often longer than the minimum listed for a specific destination. However, current terminal procedures and time criteria for sailing time, POD terminal time, and the time required for the shipment to reach the destination transportation office, are not clear. For guidance, terminal personnel rely largely on past experience and judgement.

For import personal property shipments analysis was hampered by non-availability of, and mistakes in, the supplied data base. For MOTBA's data base over 130 records were deleted due to obvious input errors. Eastern Area reports lacked crucial time segment information necessary for computing a shipments length of stay in the terminal, while numerous records received from Western Area had to be thrown out because of obvious input errors.

At least two computer reports appear necessary to monitor terminal performance with regard to processing export and import shipments. The export report should at a minimum include the date the shipment was received, the date it was

containerized, the date moved on the vessel, the number of days in terminal (determined by subtracting the received date from the lifted date), the number of days until containerized (determined by subtracting the received date from the containerized date), the number of days required to make the RDD after the shipment has been moved and the RDD. Collection of these data fields would result in establishing true terminal performance by determining the actual number of shipments that were processed within the 15 day time-in-terminal standard and/or how many shipments had sufficient time to meet the RDD even though the 15 day time-in-terminal standard was exceeded. The import report should as a minimum include the date the vessel was unloaded, the date the shipment was received in terminal, the date the carrier was called for pick-up, the carrier pick-up date, the number of days in terminal (determined by subtracting the vessel discharge date from the terminal received date), and the number of days for the carrier to pick-up the shipment (determined by subtracting the date the carrier was called from the date the carrier picked up the shipment). This import report would assist in monitoring contractor and terminal performance by providing a product that would calculate for each shipment the number of days to reach the terminal, the number of days awaiting carrier pick-up for onward movement, and the total number of days in terminal.

A great potential savings exists for standardizing

terminal contract language with respect to personal property movements within the terminal. A standardized contract would be easier to write and to enforce. Also, should personnel be transferred between terminals, standardization would greatly decrease the time required to become familiarized with the new contract. A universal definition of time-in-terminal must be established to include all the time accrued in port. For export shipments the time should commence when the shipment arrives at the terminal and end when the shipment is lifted aboard the vessel. For import shipments the time should start when the vessel discharges and end when the carrier picks up the shipment for onward movement. The terms time-in-terminal and time-in-port must be synonymous.

In conclusion, although it appears that the personal property shipment monitoring program for CONUS ocean terminals is fragmented, there does exist a great potential for commonality. The development of a definitive HQ MTMC regulation, the consolidation of computer programs and products, a universally accepted definition of time-in-terminal, and the standardization of contract language and performance criteria would significantly reduce ambiguity and confusion. The resulting improvements in the personal property monitoring program will directly benefit the service member with concomitant benefits to the DOD.

Appendix A: Steps to Process an Export Personal Property Shipment

I. Procedural steps required to process Personal Property through MOTBY which is moving overseas containerized on an MSC Chartered Vessel:

(a) Terminal Stevedore Contractor receipts for and offers the shipment for ocean bookings.

(b) MTMCEA-IT books the shipment.

(c) Terminal Stevedore Contractors containerizes the shipment after booking is received.

(d) Steamship Company drays the container to the Commercial Pier and loads (lifts) it aboard ship.

II. Procedural steps required to process Personal Property through MOTBY which is moving either breakbulk or on a non-MSC Chartered Vessel:

(a) Terminal Stevedore Contractor receipts for and offers the shipment for ocean booking.

(b) MTMCEA-IT books the shipment.

(c) MOTBY, either COD or FTD (depending on whether we are dealing with a containerized or breakbulk shipment) arranges for drayage to Commercial Pier.

(d) Terminal Stevedore Contractor containerizes or loads the shipments on drayage contractor truck (as applicable).

(e) Drayage Contractor delivers shipment to Commercial Pier either in the container or as a breakbulk shipment.

(f) Steamship Company loads (lifts) shipment.

## Appendix B: Export Data Format

Format of data used to analyze the accrual of time-in-terminal for export personal property shipments transiting military ocean terminals.

### Specific Terminal

A	B	C	D	E	F*	G*	H	I	J
TCN	NAME	RANK	RDD	DATE REC	DATE CONT	TIME TO LOAD	DATE LOAD	TOT TIME	POD

- A) Transportation Control Number
- B) Member who owns the shipment
- C) Rank of member
- D) Required Delivery Date
- E) Date shipment received at the military ocean terminal (MOT)
- F) Date shipment containerized at the military ocean terminal
- G) Time it took to containerize the shipment from day of receipt. Subtract E from F to calculate.
- H) Date shipment loaded on a vessel
- I) Total time in terminal. Subtract E from H to calculate.
- J) Destination terminal (Point of Debarkation).

	1-8 days	9-15 days	16-30 days	31+ days
Totals	_____	_____	_____	_____

### Summary By Terminal

	1-8 days	9-15 days	15-30 days	31+ days
POD	_____	_____	_____	_____

The above summary shows individual PODs and provides totals by the listed categories.

\* Requested but unavailable

## Appendix C: Import Data Format

Format of Data used to analyze the accrual of time-in-terminal for import personal property shipments transiting military ocean terminals

### Specific Terminal

A	B	C	D	E	F*	G*	H	I
TCN	NAME	RANK	RDD	DATE DISH	DATE ARRV TERM	DATE AVAL CARR P/U	DATE CARR P/U	TOT TIME

- A) through D): are the same as Appendix B
- E) Date shipment is unloaded from the ship
- F) Date shipment arrives in the terminal from the commercial carrier
- G) Date shipment is available for the carrier to pick up for onward movement
- H) Date shipment is picked up by the carrier
- I) Total time spent in terminal. Calculate by subtracting E from H.

	1-8 days	9-15 days	16-30 days	31+ days
Totals	_____	_____	_____	_____

\* Requested but unavailable

## Appendix E: Interview Guide

Follow-up interviews to responses received in the HQ MTMC action message (Appendix D)

According to Emory, we need to solicit the views of those believed to be knowledgeable in the area in question so as to get an accurate picture of the current situation. Seldom is all the information in any field written down. By questioning persons experienced in the subject matter, we can gain an insight into the relationships between variables (23:89). The following questions were asked to establish background credibility of the interviewees on the subject:

- 1) What is your current position?
- 2) How long have you worked in your current position?
- 3) Have you held any other position within MTMC with regard to moving personal property or freight through a military ocean terminal? If so, what position? How long did you hold it? When? Please describe.
- 4) Have you ever held any similar positions in industry? If so describe as in 3 above.
- 5) Request a formal position description from personnel on your current position.

Upon establishing the background of the interviewee, information requested and generated by the HQ MTMC action message was expanded upon as follows:

### \* For MTE-IT and MTW-IT Personnel \*

- a) How are personal property shipments booked? Please verbally walk us through the booking procedures, step-by-step, from start to finish. What regulations and/or Standard Operating Procedures (SOPs) govern this operation? If there is no written guidance, request an explanation of the unwritten policy that is followed.
- b) What regulations, contracts, SOPs or unwritten guidance govern:
  - 1) inprocessing the shipment and initial transfer
  - 2) offering for booking
  - 3) receiving a booking
  - 4) stuffing a container
  - 5) draying the shipment to the pier
  - 6) time awaiting a vessel

For military ocean terminal personnel, the following questions regarding import personal property shipments were asked:

- a) Request confirmation on how the import personal property workload percentages were arrived at.
- b) What are the custom clearance procedures?
  - Are shipments supposed to be cleared before the ship reaches port?
  - What percentage of shipments do you estimate have customs' problems?
  - What regulations, SOPs, or unwritten guidance govern the handling of customs?
- c) What regulations, contracts, SOPs, or unwritten guidance govern:
  - 1) drayage of shipments to the terminal
  - 2) stripping the container
  - 3) warehousing property and distribution of documents
  - 4) cutting GBLs
  - 5) calling the carrier for pick-up
  - 6) carrier pick-up of the shipment
- d) When does terminal time start and stop accruing for import personal property shipments? What regulations, contracts, SOPs, or unwritten guidance govern this? What documents if any are used to monitor import personal property time-in-terminal?

For military ocean terminal personnel, the following questions regarding export personal property shipments were asked:

- a) Request confirmation on how the export personal property workload percentages were arrived at.
- b) What Regulations, contracts, SOPs, or unwritten guidance govern:
  - 1) improcessing the shipment and initial transfer
  - 2) offering for a booking
  - 3) stuffing a container
  - 4) draying the shipment to the pier
- c) same as d) above, for export



# Appendix F: Individual Port Shipment Data

Pacific Northwest Outport (PNW OPT), Seattle, Washington  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Manila (SA1)	3				100.0
Subic Bay (SA3)	320	79	34		92.8
Naha (UB1)	52	17	21	4	73.4
Kunsan (UD1)			1		0.0
Pusan (UD6)	30	6	9	1	78.3
Iwakuni (UL7)	12	4			100.0
Yokohama (UM1)	64	26	24	2	77.6
Yokosuka (UM4)	120	48	26		86.6
Yokohama (UME)	1				100.0
Sasebo (UQ2)	2	2	1		80.0
Honolulu (XE1)	17	17	16	1	66.7
Ketchiken (YB1)	1				100.0
Wrangel (YB3)	1				100.0
Juneau (YB6)	2				100.0
Whittier (YC3)	116	41	1		99.4
Seward (YC4)	151	12			100.0
Anchorage (YC6)	182	71	14		94.8
Kodiak (YD1)	2				100.0
Adak Isl. (YL1)	18	76	79	2	53.7
	----	----	-----	-----	-----
TOTALS	1094	399	226	10	
%	63.3	23.1	13.1	.6	86.3

(Totals do not add up to 100% due to rounding error)

Southern California Outport (SOCAL), San Pedro CA  
 Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984).

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Balboa (BA1)			1	2	0.0
Bremerhaven (JF1)			1		0.0
Rotterdam (JG1)			1		0.0
Bangkok (RA1)			1		0.0
Subic Bay (SA3)	312	323	103		86.0
Apra Harbor (TA1)	1	1	3		62.5
NSD, Guam (TA2)		1			100.0
Naha (UB1)	47	81	50	1	71.5
Kunsan (UD1)	1				100.0
Pusan (UD6)	54	72	50	3	70.4
Pusan (UDC)	4				100.0
Iwakuni (UL7)	5	10	6		71.4
Yokohama (UM1)	39	108	57	1	71.7
Yokosuka (UM4)	26	46	24		75.0
Yokohama (UME)	3				100.0
Sasebo (UQ2)	6	3		1	90.0
NW Cape (VA3)		1		5	16.7
Christchurch (VE3)				1	0.0
Pearl Harbor (XE2)	57	71	31		80.5
	----	----	-----	----	-----
TOTALS	555	720	328	14	
%	34.3	44.5	20.3	.9	78.8

Military Ocean Terminal, Oakland (MOTBA), Oakland CA  
 Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ----	% < 16 -----
Balboa (BA1)	10	13	14		62.2
Bangkok (RA1)	2	8	14	2	38.5
Manila (SA1)	5	2	1		87.5
Subic Bay (SA3)	626	410	86		92.3
NSD, Guam (TA2)	130	67	11	1	94.3
Kwajalein (TJ1)	158	3			100.0
Naha (UB1)	69	102	42	2	79.5
Pusan (UD6)	60	77	11	1	91.9
Iwakuni (UL7)	11	5	2		88.9
Yokohama (UM1)	115	114	27		89.5
Yokosaka (UM4)	139	59	13		93.8
Sasebo (UQ2)	1	9			100.0
Freemantle (VA2)				2	0.0
NW Cape (VA3)	4	1	4	5	35.7
Sydney (VC1)			2		0.0
Pearl Harbor (XE2)	309	205	17	1	96.6
Pearl Harbor (XE3)	1				100.0
	----	----	-----	----	-----
TOTALS	1640	1075	244	14	
%	55.2	36.2	8.2	.5	91.3

(Totals do not add up to 100% due to rounding error)

Gulf Outport (GULF OPT), New Orleans LA  
 Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ----	% < 16 -----
Balboa (BA1)	25	26	27	6	60.7
San Juan (CK1)	1	1	1		66.7
Roosevelt (CK2)	45	64	29		79.0
Christiansted (CM2)	1				100.0
London (HA7)	4	3	3		70.0
Felixstowe (HA8)	16	16	48	9	36.0
Oslo (JA1)			1		0.0
Helsinki (JD1)				1	0.0
Bremerhaven (JF1)	106	152	51	1	83.2
Rotterdam (JG1)	394	369	172	5	81.2
Tunis (KD1)			1		0.0
Cadiz (KJ1)	7	5	12	2	46.2
Rota (KJ2)	4	5	9	1	50.0
Piraeus (LD1)			1	2	0.0
Iraklion, Crete (LD8)			1		0.0
Alexandria (LK1)			1		0.0
Lagos (ML1)			1		0.0
Bangkok (RA1)			5	1	0.0
NSD, Guam (TA2)	1		1		50.0
Pearl Harbor (XE2)	9	1	6	1	58.8
	----	----	-----	----	-----
TOTALS	613	643	370	29	
%	37.0	38.9	22.4	1.8	75.9

(Totals do not add up to 100% due to rounding error)

Military Ocean Terminal, Bayonne (MOTBY), Bayonne NJ  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Keflavik (AU2)	14	54	54	2	54.8
Balboa (BA1)	6	12	16	4	47.4
Kingston (CG1)		1	2		33.3
San Juan (CK1)	2	3			100.0
Roosevelt (CK2)	39	48	21		80.6
Puerto Tomas (CR6)	1				100.0
San Jose (DB1)			1		0.0
Praia Vitoria (GA3)	1				100.0
London (HA7)	3	11			100.0
Felixstowe (HA8)	56	53	31		77.9
Holy Loch (HE3)	3	5	8	1	47.1
Glasgow (HE4)	1	1	7		22.2
Greenock (HED)	7	12	12		61.3
Grangemouth (HF6)		1	4		20.0
Ly Ness (HG3)	2				100.0
Oslo (JA1)	4	1			100.0
Helsinki (JD1)	2				100.0
Gdynia (JE1)		3			100.0
Bremerhaven (JF1)	110	112	78	10	71.6
Farge (JF9)	1				100.0
Rotterdam (JG1)	335	388	190	5	78.8
Lisbon (KA1)	3	7	16	8	29.5
Alverca (KA4)			1		0.0
Casablanca (KB1)	1	1	10	4	12.5
Kenitra (KB6)			1		0.0
Rabat (KB7)	1				100.0
Tunis (KD1)	2	2	3	2	44.4
Catania (KE3)	2	4	8	1	40.0
Naples (KF1)	5	12	16	4	45.9
Leghorn (KF3)	8	12	17	6	46.5
Cagliari (KG1)	1				100.0
LaMaddalena (KG2)	1	1	2	2	33.3
Cadiz (KJ1)	8	6	16	1	45.2
Rota (KJ2)	3	15	9		66.7
Piraeus (LD1)	3	6	16	1	34.7
Iraklion (LD8)		2	3	1	33.3
Larnaca (LG1)			1		0.0
Alexandria (LK1)		1		1	50.0
Cairo (LK2)			3	2	0.0
Iskenderum (LQ1)		1	10	6	5.9
Izmir (LR1)	2	1	4	3	30.0
Istanbul (LR2)		2	3	2	28.6

Bayonne (Continued)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Mombasa (NF1)			1		0.0
Bahrein (PK1)				1	0.0
Bangkok (RA1)		2	9	11	9.1
NSD, Guam (TA2)	1	2	13	7	13.0
Chichi Jima (UA2)		1			100.0
Honolulu (XE1)			1		0.0
Pearl Harbor (XE2)	19	35	63	15	40.9
	----	----	-----	----	-----
TOTALS	647	818	650	100	
%	29.2	36.9	29.3	4.5	66.1

(Totals do not add up to 100% due to rounding error)

Norfolk, Virginia  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Keflavik (AU2)	95	134	136	11	60.9
Balboa (BA1)	1	2	6		33.3
St. George (CA2)	115	73	41		82.1
Naval Station (CA3)	26	15	14		74.5
Guantanamo (CE1)	34	131	184	13	45.6
Santa Maria (GA2)		1			100.0
London (HA7)	4	5	4		69.2
Felixstowe (HA8)	10	16	13		66.7
Liverpool (HB4)		1			100.0
Bremerhaven (JF1)	76	94	59	5	72.6
Rotterdam (JG1)	51	93	28	3	82.3
Casablanca (KB1)			2		0.0
Tunis (KD1)	3				100.0
Catania (KE3)	4	10	15		48.3
Naples (KF1)	6	20	11	4	63.4
Leghorn (KF3)	6	13	17	3	48.7
Cagliari (KG1)		2			100.0
LaMaddalena (KG2)	4	5	2		81.8
Cadiz (KJ1)	9	2	3		78.6
Rota (KJ2)	8	11	11		63.3
Barcelona (KL1)	3	2			100.0
Brindisi (LA3)	2	3	1		83.3
Piraeus (LD1)	7	5	3	2	70.6
Patras (LD3)	1				100.0
Iraklion (LD8)	2				100.0
Tel Aviv (LJ2)			1		0.0
Iskenderun (LQ1)	5	2	8	5	35.0
Izmir (LR1)	1	4	6	3	35.7
Istanbul (LR2)	1			2	33.3
NSD, Guam (TA2)	5	7	16	1	41.4
Naha (UB1)		1			100.0
Pearl Harbor (XE2)	40	18	57	12	45.7
	----	----	----	----	-----
TOTAL	519	670	638	64	
%	27.4	35.4	33.7	3.4	62.9

(Totals do not add up to 100% due to rounding error)

Savannah, Georgia  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Balboa (BA1)	2			1	66.7
Hamble (HA3)	1				100.0
Southhampton (HA4)		6	1	1	75.0
London (HA7)	18				100.0
Felixstowe (HA8)	214		4		98.2
Bremerhaven (JF1)	154	1		1	99.4
Rotterdam (JG1)	376			1	99.7
	----	----	-----	-----	-----
TOTALS	765	7	5	4	
%	98.0	.9	.6	.5	98.9



Jacksonville/Canaveral, Florida  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Andros Isl. (CB5)	7	1			100.0
Guantanamo (CE1)	182		3	4	96.3
Grand Cayman (CG3)	2				100.0
Roosevelt (CK2)	6	9	4		78.9
Charlotte (CM1)	7	7	1		93.3
Christiansted (CM2)	12	4	3		84.2
St. John's (CN2)	11	3			100.0
	----	----	-----	-----	-----
TOTALS	227	24	11	4	
%	85.3	9.0	4.1	1.5	94.4

(Totals do not add up to 100% due to rounding error)

Charleston. South Carolina  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - December 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Bremerhaven (JF1)	5				100.0
Catania (KE3)	3				100.0
Naples (KF1)	22				100.0
Leghorn (KF3)	21				100.0
LaMaddalena (KG2)	2				100.0
Cadiz (KJ1)	42				100.0
Rota (KJ2)	6				100.0
Algeciras (KJ6)	34	4			100.0
Barcelona (KL1)	1				100.0
Brindisi (LA3)	2				100.0
Piraeus (LD1)	16				100.0
Iraklion (LD8)	2				100.0
Cairo (LK2)	1				100.0
Subic Bay (SA3)	1				100.0
	----	----			-----
TOTALS	158	4			
%	97.5	2.5			100.0

Philadelphia, Pennsylvania  
Personal Property Days in Port (Export)

Days in port versus POD (October 1983 - September 1984)

POD ---	1-8 ---	9-15 ----	16-30 -----	31+ ---	% < 16 -----
Balboa (BA1)	3 ----	6 ----	23 -----	3 ----	25.7 -----
TOTALS	3	6	23	3	
%	8.8	17.6	64.7	8.8	25.7

(Totals do not add up to 100% due to rounding error)

Import analysis derived from data accumulated from October - June 1985.

Pacific Northwest Outport (PNW OPT), Seattle, Washington  
Personal Property Days in Port (Import)

	1-8	9-15	16-30	31+	% < 16
	-----	-----	-----	-----	-----
	150	107	39	2	
%	50.3	35.9	13.1	.7	86.2

Southern California Outport (SOCAL), San Pedro CA  
Personal Property Days in Port (Import)

	1-8	9-15	16-30	31+	% < 16
	-----	-----	-----	-----	-----
	412	948	511	91	
%	21.0	48.3	26.1	4.6	69.3

Military Ocean Terminal, Oakland (MOTBA), Oakland CA  
Personal Property Days in Port (Import)

	1-8	9-15	16-30	31+	% < 16
	-----	-----	-----	-----	-----
	723	564	1493	945	
%	19.4	15.1	40.1	25.4	34.5

## Appendix G: Mathematical Design

The boxes of information below (35:310,311) form the basis of our mathematical design for statistical testing. Following this information are the actual statistical computations for each terminal (both export and import where available).

### SAMPLING DISTRIBUTION OF $\hat{p}$

1. The mean of the sampling distribution of  $\hat{p}$  is  $p$ ; i.e.,  $\hat{p}$  is an unbiased estimator of  $p$ .
2. The standard deviation of the sampling distribution of  $\hat{p}$  is  $\sqrt{pq/n}$ ; i.e.,  $\sigma_{\hat{p}} = \sqrt{pq/n}$ , where  $q = 1 - p$ .
3. For large samples, the sampling distribution of  $\hat{p}$  is approximately normal. A sample size will be considered large if the interval  $\hat{p} \pm 3\sigma_{\hat{p}}$  does not include 0 or 1. [Note:  $p$  will usually be unknown. You will have to guess or approximate its value to apply this criterion.]

### LARGE-SAMPLE CONFIDENCE INTERVAL FOR $p$

$$\hat{p} \pm z_{\alpha/2} \sigma_{\hat{p}} = \hat{p} \pm z_{\alpha/2} \sqrt{pq/n} \quad \text{where } q = 1 - p$$

$\hat{p}$  is the average or mean number of successes per trial in (n) trials (35:309).

### LARGE-SAMPLE TEST OF AN HYPOTHESIS ABOUT $p$

#### One-tailed test

$H_0: p = p_0$  ( $p_0$  = hypothesized  
p value)

$H_a: p < p_0$   
(or  $H_a: p > p_0$ )

Test statistic:  $z = \frac{\hat{p} - p_0}{\sigma_{\hat{p}}}$

where  $\sigma_{\hat{p}} = \sqrt{[p_0(1 - p_0)]/n}$ ,\* assuming  $H_0$  is true

Rejection region:  $z < -z_{\alpha}$   
(or  $z > z_{\alpha}$   
when  $H_a: p > p_0$ )

#### Two-tailed test

$H_0: p = p_0$

$H_a: p \neq p_0$

Test statistic:  $z = \frac{\hat{p} - p_0}{\sigma_{\hat{p}}}$

Rejection region:  $z < -z_{\alpha/2}$   
or  $z > z_{\alpha/2}$

## Exports

### Pacific Northwest Outport (PNW OPT), Seattle WA

One-tailed hypothesis test:

$$H_0: p = .05$$

Rejection Region  $z > 1.645$

$$H_a: p > .05$$

$$\text{Test statistic: } z = \frac{.137 - .05}{.008} = 10.875$$

$10.875 > 1.645$ , therefore reject the null

Confidence interval:

$$\begin{aligned} .137 + (-) 1.960 (.008) &= .137 + (-) .016 \\ &= (.121, .153) \end{aligned}$$

### Southern California Outport (SOCAL)

One-tailed hypothesis test:

$$H_0: p = .05$$

Rejection Region:  $z > 1.645$

$$H_a: p > .05$$

$$\text{Test statistic: } z = \frac{.212 - .05}{.010} = 16.200$$

$16.200 > 1.645$ , therefore reject the null

Confidence interval:

$$\begin{aligned} .212 + (-) 1.960 (.010) &= .212 + (-) .020 \\ &= (.192, .232) \end{aligned}$$

### Military Ocean Terminal, Oakland (MOTBA)

One-tailed hypothesis test:

$$H_0: p = .05$$

Rejection Region:  $z > 1.645$

$$H_a: p > .05$$

$$\text{Test statistic: } z = \frac{.087 - .05}{.005} = 7.400$$

$7.400 > 1.645$ , therefore reject the null

Confidence interval:

$$\begin{aligned} .087 + (-) 1.960 (.005) &= .087 + (-) .010 \\ &= (.077, .097) \end{aligned}$$

### Gulf Outport (GULF OPT)

One-tailed hypothesis test:

Ho:  $p = .05$                       Rejection Region  $z > 1.645$   
Ha:  $p > .05$

Test statistic:  $z = \frac{.242 - .05}{.011} = 17.454$

$17.454 > 1.645$ , therefore reject the null

Confidence interval:  
 $.242 + (-) 1.960 (.011) = .242 + (-) .022$   
 $= (.220, .264)$

Military Ocean Terminal, Bayonne (MOTBY)

One-tailed hypothesis test:  
Ho:  $p = .05$                       Rejection Region:  $z > 1.645$   
Ha:  $p > .05$

Test statistic:  $z = \frac{.338 - .05}{.010} = 28.800$

$28.800 > 1.645$ , therefore reject the null

Confidence interval:  
 $.338 + (-) 1.960 (.010) = .338 + (-) .020$   
 $= (.318, .358)$

Imports

Pacific Northwest Outport (PNW OPT)

One-tailed hypothesis test:  
Ho:  $p = .05$                       Rejection Region:  $z > 1.645$   
Ha:  $p > .05$

Test statistic:  $z = \frac{.138 - .05}{.020} = 4.400$

$4.400 > 1.645$ , therefore reject the null

Confidence interval:  
 $.138 + (-) 1.960 (.020) = .138 + (-) .039$   
 $= (.099, .177)$

Southern California Outport (SOCAL)

One-tailed hypothesis test:  
Ho:  $p = .05$                       Rejection Region  $z > 1.645$   
Ha:  $p > .05$

Test statistic:  $z = \frac{.307 - .05}{.010} = 25.700$

$25.700 > 1.645$ , therefore reject the null

Confidence interval:

$$\begin{aligned} .307 + (-) 1.960 (.010) &= .307 + (-) .020 \\ &= (.287, .327) \end{aligned}$$

Military Ocean Terminal, Oakland (MOTBA)

One-tailed hypothesis test:

$H_0: p = .05$

Rejection Region  $z > 1.645$

$H_a: p > .05$

Test statistic:  $z = \frac{.645 - .05}{.008} = 75.500$

$75.500 > 1.645$ , therefore reject the null

Confidence interval:

$$\begin{aligned} .654 + (-) 1.960 (.008) &= .654 + (-) .016 \\ &= (.638, .670) \end{aligned}$$



## Appendix H: Computer Programs

```

c      lw.f- sorts from magnetic tape and puts in appro-
c      priate terminal file. Also, computes ndip.
      character poe*3, pod*3, tcn*17
      integer rdd, rcvd, pudte, ndip
      open (1, file = 'tapelw')
      rewind (1)
      open (2, file = 'bay')
      rewind (2)
      open (3, file = 'gulf')
      rewind (3)
      open (4, file = 'socal')
      rewind (4)
      open (5, file = 'oak')
      rewind (5)
      open (6, file = 'seat')
      rewind (6)
      open (7, file = 'bogus')
      rewind (7)
99     continue
100    read(1,30,end=200,err=99) poe,pod,tcn,rdd,rcvd,pudte
30     format (20x,a3,a3,3x,a17,7x,a3,30x,i3,1x,i3,39x)
      if (rcvd .gt. pudte) then
      ndip=(365-rcvd)+pudte
      else
      ndip = pudte-rcvd
      end if
      if (pod (1:2) .eq. '1G') then
      write (2,40) poe,tcn,rdd,rcvd,pudte,pod,ndip
      else if (pod (1:2) .eq. '2D') then
      write (3,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '3H') then
      write (4,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '3D') then
      write (5,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '4D') then
      write (6,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else
      write (7,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      end if
40     format (a3,1x,a17,1x,i3,1x,i3,1x,i3,1x,a3,1x,i5)
      go to 100
200    continue
      close (1)
      close (2)
      close (3)
      close (4)
      close (5)
      close (6)
      close (7)
      end

```



AD-A174 314

AN INVESTIGATION OF CODE 5 AND DIRECT PROCUREMENT  
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WRIGHT-PATTERSON AFB OH SCHOOL OF SYST

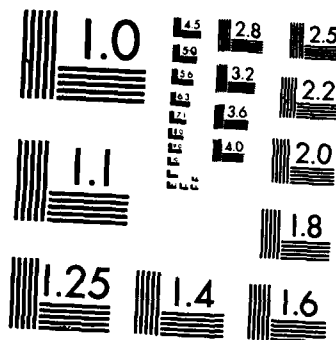
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

```

c      Thesis Program 3w.- used for sorting minor eastern
c      area terminals and computing number of days in port.
character poe*3, pod*3, tcen*17
integer rdd, rcvd, pudte, ndip
open (1, file = 'tapelw')
rewind (1)
open (2, file = '1M')
rewind (2)
open (3, file = '1Q')
rewind (3)
open (4, file = '1P')
rewind (4)
open (5, file = '1K')
rewind (5)
open ( 6, file = '1R')
rewind (6)
open (7, file = 'bogus1')
rewind (7)
99      continue
100     read(1,30,end=200,err=99) poe,pod,tcn,rdd,rcvd,pudte
30      format (20x,a3,a3,3x,a17,7x,a3,30x,i3,1x,i3,39x)
      if (rcvd .gt. pudte) then
      ndip=(365-rcvd)+pudte
      else
      ndip = pudte-rcvd
      end if
      if (pod (1:2) .eq. '1M') then
      write (2,40) poe,tcn,rdd,rcvd,pudte,pod,ndip
      else if (pod (1:2) .eq. '1Q') then
      write (3,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '1P') then
      write (4,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '1K') then
      write (5,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else if (pod (1:2) .eq. '1R') then
      write ( 6,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      else
      write (7,40) poe, tcn, rdd, rcvd, pudte, pod, ndip
      end if
40      format (a3,1x,a17,1x,i3,1x,i3,1x,i3,1x,a3,1x,i5)
      go to 100
200     continue
      close (1)
      close (2)
      close (3)
      close (4)
      close (5)
      close (6)
      close (7)
      end

```

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Captain Walter R. Furtak was born on 5 November 1954 in Passaic, New Jersey. After graduating from high school in Wallington, New Jersey, in 1972, he attended Newark College of Engineering from which he received a Bachelor of Industrial Administration degree in May 1977. Upon graduation, Captain Furtak received a commission in the USAF through the ROTC program. Following his completion of the basic Transportation Officer Course, he was assigned as the Vehicle Maintenance Officer to the 347th Transportation Squadron at Moody AFB, Georgia, until October 1979. He was then assigned as the Vehicle Operations Officer to the 51st Transportation Squadron, Osan AFB, Korea. In October 1981 he was reassigned to the Military Traffic Management Command, HQ, Eastern Area, Bayonne, New Jersey, as a staff transportation officer, until entering the School of Systems and Logistics, Air Force Institute of Technology, in May 1984.

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

## REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE				
4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GLM/LSM/85S-49			5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics		6b. OFFICE SYMBOL (If applicable) AFIT/LSM		7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB, Ohio 45433			7b. ADDRESS (City, State and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State and ZIP Code)			10. SOURCE OF FUNDING NOS.	
			PROGRAM ELEMENT NO.	PROJECT NO.
			TASK NO.	WORK UNIT NO.
11. TITLE (Include Security Classification) See Box 19				
12. PERSONAL AUTHOR(S) Walter R. Furtak, B.A., Capt, USAF Charles M. Mielke, B.S., Maj, USAF				
13a. TYPE OF REPORT MS Thesis		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Yr Mo., Day) 1985 September
15. PAGE COUNT				
16. SUPPLEMENTARY NOTATION				
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB. GR.	Transportation, Military Transportation, Logistics, Household Goods, Terminals, Traffic, Water Traffic	
15	05			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)				
Title: AN INVESTIGATION OF CODE 5 AND DIRECT PROCUREMENT METHOD (DPM) PERSONAL PROPERTY SHIPMENTS TRANSITING MILITARY OCEAN TERMINALS				
Thesis Advisor: Kent N. Gourdin, Major, USAF Assistant Professor of Logistics Management				
Approved for public release: IAW AFR 190-1 LYN E. WOLVER 11 Sept 85 Dean for Research and Professional Development Air Force Institute of Technology (AFIT) Wright-Patterson AFB OH 45433				
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> OTIC USERS <input type="checkbox"/>			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL Kent N. Gourdin, Major, USAF		22b. TELEPHONE NUMBER (Include Area Code) 513-255-4017		22c. OFFICE SYMBOL AFIT/LSMA

The Military Traffic Management Command (MTMC) manages the international movement of DOD personal property. The responsibility for the movement of Code 5 and Direct Procurement Method (DPM) personal property (PP) overseas shipments is divided between the commercial line haul carrier and MTMC's ocean terminals. This research effort focussed on operating procedures, existing regulations, and contractual agreements which affected the processing time for import and export PP shipments through three major CONUS MTMC Western Area and two major CONUS Eastern Area ocean terminals. Documentation review, personal interviews, and telephone interviews were used to facilitate this research. A data base of import and export PP shipments was obtained from HQ MTMC and statistically analyzed with respect to the personal property 15 day time-in-terminal standard. This research resulted in the identification of six recommendations to improve the PP shipment program at MTMC CONUS ocean terminals. It was concluded that the 15 day time-in-terminal standard is crucial to the formulation of minimum Required Delivery Dates (RDDs), and therefore must be accurate to prevent establishing unreliable minimum destination RDDs. At least two computer reports appear necessary to monitor the terminals' personal property processing performance and insure the 15 day time-in-terminal standard is met.

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